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ABSTRACT

This third grade environmental education guide is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design; it is the teacher's decision when the concepts, objectives, activities, and resources may best be integrated into the existing classroom curriculum. This guide contains a series of episodes (mini-lessons), each having a number of suggested in- and out-of-class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels. The third grade guide focuses on aspects such as food/clothing/shelter, family and roles, water quality, desert regions, and sound. Each of the 12 concepts is covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. An appendix containing related games is included. (Author/TK)

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ENVIRONMENTAL EDUCATION GUIDE

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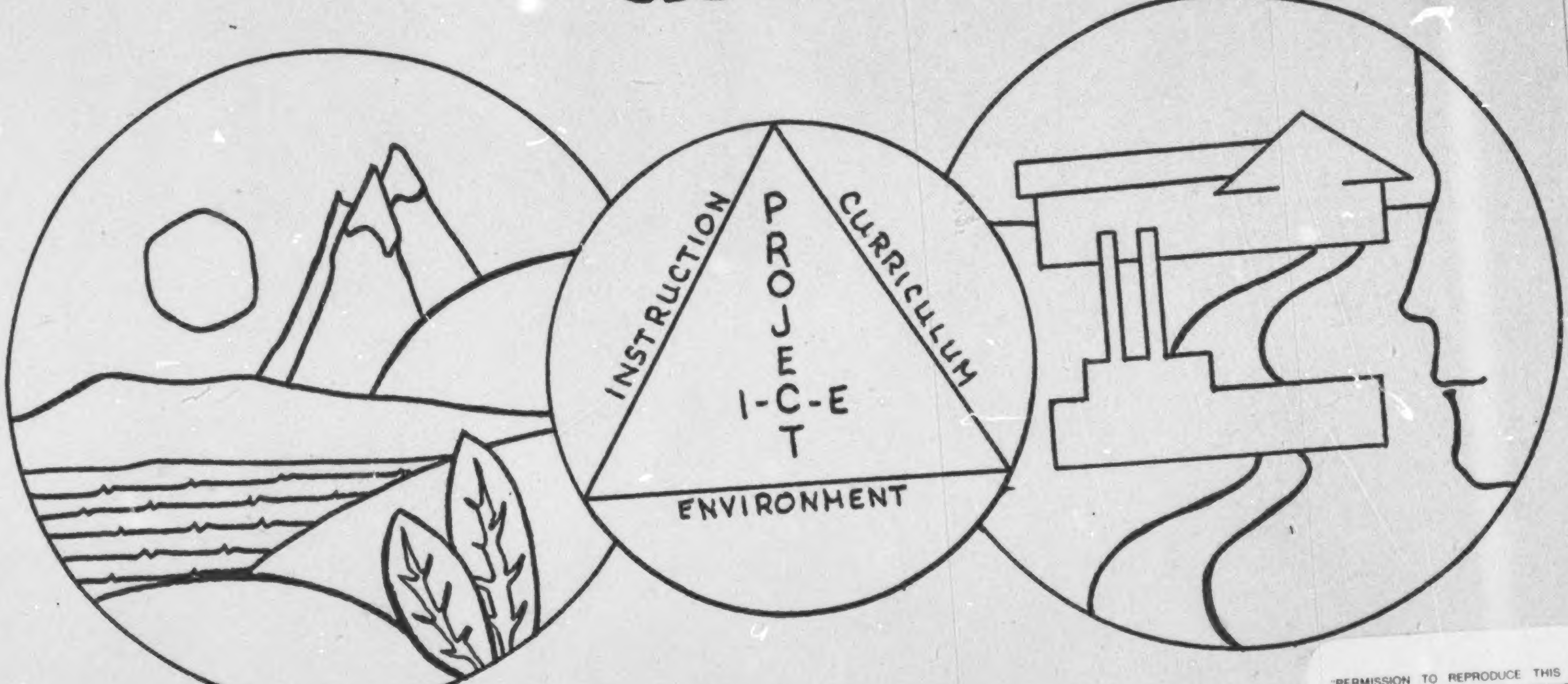

GRADE THREE

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FORWARD TO PROJECT I-C-E ENVIRONMENTAL EDUCATION GUIDES

In 1969, the First Environmental Quality Education Act was proposed in the United States Congress. At the time of the introduction of that legislation, I stated:

"There is a dire need to improve the understanding by Americans of the ominous deterioration of the Nation's environment and the increasing threat of irreversible ecological catastrophe. We must all become stewards for the preservation of life on our resource-deficient planet."

In the three years since the Environmental Education Act was passed by the Congress, much has happened in the United States to reinforce the great need for effective environmental education for the Nation's young people. The intensive concern over adequate energy resources, the continuing degradation of our air and water, and the discussion over the economic costs of the war against pollution have all brought the question of the environmental quality of this nation to a concern not merely of aesthetics but of the survival of the human race.

The intense interest by the public in the quality of our lives as affected by the environment clearly indicates that we cannot just use incentives and prescriptions to industry and other sources of pollution. That is necessary, but not sufficient." The race between education and catastrophe can be won by education if we marshall our resources in a systematic manner and squarely confront the long-term approach to saving our environment through the process of education.

As the incessant conqueror of nature, we must reexamine our place and role. Our world is no longer an endless frontier. We constantly are feeling the backlash from many of our ill-conceived efforts to achieve progress.

Rachel Carson's theme of "reverence for life" is becoming less mystical and of more substance as our eyes are opened to much of the havoc we have wrought under the guise of progress. A strong commitment to an all-embracing program of environmental education will help us to find that new working definition of progress that is a pre-requisite to the continued presence of life on this planet.

- Senator Gaylord Nelson

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PREFACE

PRIMARY TEACHERS!
Here's what you've been looking for!!
Lessons & Activities in all capacities
to INTEGRATE
With ALL subjects.
NO extra planning.
NO extra lessons.
Use daily, whenever, wherever,
the opportunity arises.
Slant this year's teaching
toward ECOLOGY!
Help your class become
AWARE
of their WORLD.
We will need their HELP
in PRESERVING it!

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DIRECTIONS FOR USING THIS GUIDE

This guide contains a series of episodes (mini-lesson plans), each containing a number of suggested in and out of class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Further, each episode offers subject area integration, multidisciplinary activities, where applicable, both cognitive and affective behavioral objectives and suggested reference and resource materials useful to the teacher and students.

1. This I-C-E guide is supplementary in design--it is not a complete course of study, nor is its arrangement sequential. You can teach environmentally within the context of your course of study or units by integrating the many ideas and activities suggested.

2. The suggested learning activities are departures from regular text or curriculum programs, while providing for skill development.

3. You decide when any concepts, objectives, activities and resources can conveniently be included in your unit.

4. All episodes can be adapted, modified, or expanded thereby providing great flexibility for any teaching situation.

5. While each grade level or subject area has its own topic or unit emphasis, inter-grade coordination or subject area articulation to avoid duplication and overlap is highly recommended for any school or district seeking effective implementation.

This total K-12 environmental education series is the product of 235 classroom teachers from Northeastern Wisconsin. They created, used, revised and edited these guides over a period of four years. To this first step in the 1,000 mile journey of human survival, we invite you to take the second step--by using this guide and by adding your own inspirations along the way.

PROJECT I-C-E TWELVE MAJOR ENVIRONMENTAL CONCEPTS

1. The sun is the basic source of energy on earth. Transformation of sun energy to other energy forms (often begun by plant photosynthesis) provides food, fuel and power for life systems and machines.
2. All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.
3. Environmental factors are limiting on the numbers of organisms living within their influence. Thus, each ecosystem has a carrying capacity.
4. An adequate supply of clean water is essential to life.
5. An adequate supply of clean air is essential for life.
6. The distribution of natural resources and the interaction of physical environmental factors greatly affect the quality of life.
7. Factors such as facilitating transportation, economic conditions, population growth and increased leisure time influence changes in land use and population densities.
8. Cultural, economic, social, and political factors determine man's values and attitudes toward his environment.
9. Man has the ability to manage, manipulate and change his environment.
10. Short-term economic gains may produce long-term environmental losses.
11. Individual acts, duplicated or compounded, produce significant environmental alterations over time.
12. Each person must exercise stewardship of the earth for the benefit of mankind.

A "Concept Rationale" booklet and a slide/tape program "Man Needs His Environment" are available from the I-C-E RMC to more fully explain these concepts.

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Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Sun Energy

Integrated with:

SUBJECT Social Studies, Language Arts

TOPIC/UNIT Food, Clothing, Shelter - Story Writing

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the importance of the sun to our plant world in areas of food, shelter and clothing in story form with illustrations using selected pictures.

Explain what the earth would be like if there would be no sun.

Affective:

Defend the need for sun in our lives in a verbal discussion.

Support the statement "Without the benefits of the sun's rays, there would be no life on earth" by writing a story.

Skills Used:

1. Organizing & interpreting facts, materials & experiences.
2. Skill of observing accurately.
3. Skill of participating in group work.
4. Discussing
5. Writing

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Class develops a bulletin with picture examples of food from plants, clothing from plants, shelter from plants & energy from plants. (When possible, show the sources of plants.)

II. Language Arts
   A. The teacher could throw out the question - "What would happen if the sun suddenly disappeared?" Have the children give ideas. (Ex.- How might the earth be different if there were no sun?
   B. Following the above discussion, write a creative story, "I am living in a world without a sun."

Outside or Community:

A. Have students bring magazines from home.
B. Invite a farmer, lumberman, grocery man, or others related to the environment to speak with the children. (Correlate with career education.)

SUGGESTED RESOURCES

Publications:

Books:
World Book Encyclopedia, VolumeS
Modern Science, Book 3, Smith, Belcha, Press. Laidlow, 1970. pp. 101-111; Bk. 4 - p. 156-57.
Science: Comparing Things, Bk. 4, McMillan Co. by Bernard & Lavatelli, pp. 23-26; 63, 68, 136-37 (1970)
Science in Your Life, Bk. 4, Schneider, pp. 428, 443, 447. D.C. Heath Co. 1968

(Continued)

Audio–Visual:

Filmstrips:
The World of Living Things
The Food We Eat and What's In Our Food
The Seasons of the Year, Set 1 and 2A, D. C. Heath Co.
Sunlight & The Earth's Temperature, set 4A
The World Of Living Things, Set 5A

Community:

Visit the nature center.

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

Clothes from Head to Toe, Pursel, 1966.
Plants in the City, Schneider, 1951.
The Blueberry Bush, Conservation & Environmental Center for Southern New Jersey
About the Vegetables on your Plate, Alee, Welmont, 1960.
How Do They Make It?, Sullivan
Bread, The Source of Life, Buehr
Our Tree, Herbert H. Wong, Addison-Wesley.
The reader soon finds what trees are for; the book's family gains an appreciation of the tree's ecological role.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Energy Use

Integrated with:

SUBJECT Science, Math, Music

TOPIC/UNIT Plants

BEHAVIORAL OBJECTIVES

Cognitive:

List three things necessary for plants to make their own food.

Conduct an experiment that will allow the determination of the number of days that a plant can live without sunlight.

Affective:

Willingly conduct an experiment that will support the plant's need for soil, water and sun for making their own food, when challenged.

Skills Used:

1. Observation
2. Recording
3. Identifying things necessary for plant growth
4. Investigating
5. Experimentation
6. Measuring-inches to meters

(Continued)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Get two plants (same kind). Don't water the plants for three days. Cover the soil of one plant with waxed paper & water both plants for two weeks. Then compare them to see which plant looks as if it can make food.
   B. Mineral experiment to show how water & minerals get up into a celery stem & leaves. Cut plant's stem away from roots. Put the cutting in a glass of colored water for a day. Observe into which part of a growing plant the water & minerals go first.
   C. Use identical plants Cover one with paper bag but continue watering and place it in dark room. After three weeks

(Continued)

Outside or Community:

I. Science
   A. Children will visit a vacant lot, park or school forest to observe plants growing there. They will report & discuss conditions under which plant growth differs because of the amount of lack of sunlight.

II. Math
   A. Invite florist to speak to class on effect of sunlight on plants in a greenhouse.
      1. He will tell class how many plants can be served per square foot of sunlight.
   B. Visit a greenhouse to see how many plants can live in a given area of sunlight.
   C. In small groups at the greenhouse students will try to determine which plants need the most sunlight and how much more. (Continued)

SUGGESTED RESOURCES

Publications:

Environmental Units: 120 NW
Plants in the Classroom
Plants Outside the Classroom
Plant Puzzles
available at ICE RMC or can be purchased at:
National Wildlife Federation, Ed. Servicing, 1412 - 16th St., N.W., Washington, D.C. 20036.
Audubon Aids: ICE RMC, 170 Na
Plant Identification folder packets
Conservation (Continued)

Audio—Visual:

Film:
Living & Non-Living Things, Coronet
Filmstrips:
Plants That Provide Food
Photosynthesis
A Grass Yard
A Park
A Park Pond
All by Herbert E. Budek, Inc. Jamaica, New York
Green Plants & Sunlight, BAVI
Sun: Friend or Foe?, BAVI

Community:

Greenhouse
Florist
Garden

CONTINUED OR ADDED LEARNING ACTIVITIES

SKILLS (Continued)
7. Rhythms
8. Non-verbal expression
9. Sequential action

PUBLICATIONS (Continued)
Plants for Pots, D. X. Fenton
The Tomato & Other Fruit Vegetables, Millicent E. Selsam
Once There Was A Tree, Phyllis Busch
Study in Plant Succession, Char and Ernest McDonald, ICE RMC
Living Things in Field and Classroom, 110 Sa, ICE RMC
"People and Their Environment", Teacher's Curriculum Guide to Conservation Education, ICE RMC, 170 Br

CLASSROOM (Continued)
uncover. Bring out the idea that one plant will die without sunlight.

II. Math
   A. The class will find the answer to the following questions:
      1. How long can a plant live without sunlight?
      2. What happens to a plant that receives no energy from the sun?
   B. The class will demonstrate how long it takes a plant to die when it is deprived of sunlight, compute days and hours.
      1. Place plant in dark place without sunlight.
      2. Water plant regularly.
      3. See that there is sufficient oxygen.
      4. Class count the number of days until change takes place in the plant.
      5. Record change in color, texture and vitality of plant.
   C. Children will show actual difference in a plant's growth that has been deprived of sunlight. Compare with one that receives an adequate supply by daily measurement in inches or meters.

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

- D. Children will discover through experimentation with specific plants that some plants need more sunlight than others. Charting and comparing will follow. Children read the back of seed packs to determine conditions for growth.

III. Music

- A. The teacher will play a selection for the student directing attention to movements portraying plant growth. (If available, time lapse films showing plant growth.)
- B. After hearing the selection, the teacher will direct a discussion concerning movements inherent in plant growth.
  1. Which way do plants grow? (Toward the sun)
  2. Why do flowers follow the sun?
- C. The students will dramatize the growth of plants in rhythmic response to the selection.

OUTSIDE ACTIVITIES (Continued)

- D. They will find out how the greenhouse supplies sunlight on cloudy days. How many hours per year?
- E. Florist will demonstrate the effect of too little sunlight on plants.

III. Music

- A. Perform for P. T. A.
- B. Perform for service club.
  1. Lion's Club
  2. Women's Club
- C. Video tape and play back for students.

E. S. E. A. Title III – PROJECT I-C-E 59-70-0135-4

Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Sun Energy

Integrated with:

SUBJECT Art

TOPIC/UNIT Drawing

BEHAVIORAL OBJECTIVES

Cognitive:

Illustrate the principle, "The whole is equal to the sum of its parts", using cutout sections of the sun.

Affective:

Accept the principle, "The whole is equal to the sum of its parts", by not challenging the statement when presented.

Skills Used:

1. Proportional enlargement (through use of a grid).
2. Drawing
   a. Crayons
   b. Oil pastels (water colors can be substituted).
3. Fitting pieces together in a puzzle.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Mural
   1. Find or make a stylized detailed picture of the sun. An opaque enlargement may be needed.
   2. Divide into numbered sections so each student will have portion of the picture.
      a. Cut & distribute.

1	2	3
4	5	6
7	8	9
10	11	12

   3. Each student must enlarge his portion of the picture on a sheet of paper that is in direct proportion to his picture segment.
   4. Each enlargement is then brought to a reserved numbered space on the wall and all the pieces are fit together as

(Continued)

Outside or Community:

SUGGESTED RESOURCES

Publications:

"Humanizing the School With Children's Art", Instructor, 79:55 May '70

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

a puzzle to resemble the first picture.
RESULT: Large mosaic murals of the sun. Limit colors to warm colors--red orange, pink and yellow.

E. S. E. A. Title III – PROJECT I-C-E 59-70-0135-4

Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Sun Energy

Integrated with:

SUBJECT Art

TOPIC/UNIT Drawing

BEHAVIORAL OBJECTIVES

Cognitive:

Illustrate the effect of light on a subject by tracing shadows.

Affective:

Demonstrate awareness of the effect of lighting on a subject by moving an object to increase or decrease the intensity of light on the objects.

Skills Used:

1. Working with large sheets of paper and charcoal.
2. Tracing.
3. Positive and negative space.
4. Balancing a composition.
5. Awareness.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Sun Shadows
   1. Go outside and collect sun shadows by tracing the shadows of bike wheels, trees, students, etc. on large sheets of newsprint.
   2. After shadows have been traced, students can use the space divisions for a design which will utilize the object's form and spaces between the object's shadows.
   3. Use Sketcho, crayons, markers, colored inks, chalk-limit colors to sun colors.

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: "Positive View of Negative Space", S. Chanson, il. *Arts & Activities*, 64:23-25 N '68. "Psychedelic Posters", M. F. Bolger, *School Arts*, p. 40, Sept. '71. Environmental Unit, "Shadows" published by National Wildlife Federation, ICE RMC, 120 Nw **Audio–Visual:** **Community:**	

Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Sun Energy

Integrated with:

SUBJECT Art

TOPIC/UNIT Sculpture

BEHAVIORAL OBJECTIVES

Cognitive:

Devise a plan to create an object which reproduces the following characteristics of the sun: energy, warmth, plant growth, weather, light, day and night.

Affective:

Indicate his value of the sun by volunteering his comments on the importance of the sun.

Skills Used:

1. Integrating available materials, e.g. boxes in construction.
2. Painting (finished product).
3. Discussion.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discussion held about the characteristics of the sun (sample questions).
    1. What words would you use to describe the sun?
    2. What does the sun do for others?
    3. What does the sun do for you?
    4. What feelings does the sun give you?

B. Teacher will jot down on the chalkboard key points of the discussion.

C. Sun Machine - Box Sculpture
    1. Create a mini-machine to replace the sun out of a shoe box and available materials. Students will have the option to choose those characteristics of the sun which their machine will duplicate. Students and teacher will collect and share materials for the art project.

(Continued)

Outside or Community:

SUGGESTED RESOURCES

Publications:

"Invent a Machine", M.A. Burke, Arts & Activities, p. 29, Dec. '69.

"Paper to Amaze", M. Seehafer, Instructor, 81:73 April '72.

"Recreating the Mediocre & the Discard", B. Stuffins, School Arts, 70:11, March '71.

"Creative Use of Scrap Materials", R.G. Lervie, School Arts, 69:11 Feb. '70.

Audio-Visual:

"Our Mr. Sun", Bell Telephone

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. If time is limited, this may be done as a two-dimensional project.

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Ecosystem

Integrated with:

SUBJECT Social Studies

TOPIC/UNIT Interdependence of Nature - Food Chains

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the dependence of people on other people or nature for the necessities of life.

Describe a food chain using a diagram beginning with small plants and ending with people.

Affective:

Awareness that all living things are interdependent in a delicate balance in nature.

Indicate their value of all living things in the balance of nature by making statements such as "Even the tiny ladybug is important in the balance of nature".

Skills Used:

1. Chart making.
2. Research skill.
3. Organize and interpreting.
4. Observing accurately.
5. Participating in group work.
6. Drawing.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. After having studied several communities in social studies, the children will choose one of the following--clothes, shelter--and make charts showing where each article comes from. Example:

Article	Homemade	Bought	Origin

After finishing the chart, the child will write a paragraph telling how the people depend on other people and nature. Children may wish to illustrate a community helper and write a paragraph telling why we depend upon that person.

(Continued)

Outside or Community:

A. Visit a local supermarket or other business.
   1. Find out how we depend on other communities, for needs there. i.e. bakery--flour from Minnesota, raisins from California, etc.
   2. Write an experience chart on what was seen.

SUGGESTED RESOURCES

Publications:

The Forest and Sea, Bates, 1960
Seeds Are Wonderful, Melmont, 1960
How A Seed Grows, Crowell
True Book of Plants We Know, Niner
Pets From the Pond, Buck
See Through the Lake, Selson

Poem, Backyard Zoo

Audio—Visual:

Finding How Things Change, Society for Visual Education
Animals That Help Us, Filmstrip House
The World of Living Things, Health Science
Interdependence of Living Things, McGraw-Hill, ICE RMC, FS St13
Introducing Animals Series, McGraw-Hill, ICE RMC, KT 19
Introduction to Ecology, ICE RMC, KT 2

(Continued)

Community:

Field trip to school forest.
Visit a pond or lake. Ask children to see how many plants and animals they can find living in or around the water.

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)

Film:
A Slice of Bread, ICE RMC, Film #330
Card game:
Environmental Action - No Time to Waste, ICE RMC, KT 10 (deals with food chains)

CLASSROOM (Continued)

B. Teacher uses Audubon food chains and other graphics to introduce food chain idea.

C. After studying the food habits of animals who live in the sea or some other habitats, students will be able to make a diagram of the food chain which exists among plants and animals in the sea, forest or deserts.

Land - interdependence - green plants - animals - man - replant and take care of green plants.
Sea - small green plants - small fish - large fish - large sea animals.

1. Plant - mouse - weasel - fox - cougar
2. Wheat - grasshopper - snakes - hawk

Youngsters can draw pictures of the animals and plants involved and draw arrows showing which eat which. (Can work as teams.)

D. Encourage group to become interested with their parents to plant flowers and other vegetation in their community. They can start with their own backyard.

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Ecosystem

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Family & Roles

BEHAVIORAL OBJECTIVES

Cognitive:

Demonstrate a family living in harmony/out of harmony through the use of role-playing in groups.

Affective:

Demonstrate their value of harmony by freely giving an example of a way in which they have promoted harmony in their own home and explaining why they did it.

Skills Used:

1. Create an idea.
2. Work in a group.
3. Participate in the playlet.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Play SRA record or family story.
B. List and draw members of the family living together - mother, father, brother, sister, grandmother, etc.
C. Discussion of family living:
   1. What causes disagreement in families?
   2. What things help a family live together well?
D. Divide class into groups. Each group write a playlet showing:
   1. How the family members work together happily.
   2. What happens when disagreements arise.
E. Put on playlets.

Outside or Community:

A. Bring in a mother or father willing to discuss the responsibilities of each family member.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Children's books: Tony's Hardwork Day There's Nothing To Do So Let Me Be You The Motherless Bug, Nancy Rose The Cheerful Quiet, Horvet **Audio–Visual:** Filmstrips: Happy Family, BAVI Happy Helpers, BAVI filmstrip pertaining to family sharing and living SRA - Social Studies Record I, Side I **Community:**	

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Life Cycles

Integrated with:

SUBJECT Mathematics

TOPIC/UNIT Multiplication & Pond Life

BEHAVIORAL OBJECTIVES

Cognitive:

Calculate the increase or decrease of population within an ecosystem, given appropriate data.

Affective:

Propose a way to preserve an ecosystem.

Skills Used:

1. Digit multiplication.
2. Addition.
3. Subtraction.
4. Interpretation.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. The student is given an ecosystem to work with.
  1. Give a detailed list and numbers of the items in the ecosystem. In a pond:

Cattails	10
Crayfish	32
Bullheads	24
Frogs	16
Algae	1,750,652
Water bugs	127

  2. Create problems which indicate either multiplication of the plant and animal population or decrease of the population.
    a. On a warm day the algae multiplied and 2,220,443 new algae were made. How many do you have now? What will this do to the pond?
    b. Twelve frogs laid eggs. Of all the eggs laid, seven from each frog grew

(Continued)

Outside or Community:

A. Have a DNR representative speak on the establishment of a pond.

B. Visit a pond in the area. Do actual counting of members in the pond.

* Note - Numbers used in this lesson can be changed to fit the math skills of your students.

SUGGESTED RESOURCES

Publications:

Ecology - Fresh Waters and Man, ICE RMC
SCIS, Organisms, ICE RMC, 100 Ca
SCIS, Environments, ICE RMC, 110 La
SCIS, Life Cycles, ICE RMC, 110 Bu
Audubon Aids, Life in a Pond and Symbiosis, ICE RMC, 170 Na No. 7

Audio–Visual:

Films:
Nature's Half Acre, ICE RMC, Film #210
Life In a Pond, BAVI
Life In an Aquarium, BAVI
Eco-Lab, ICE RMC, KT 21

Community:

DNR representative

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

into tadpoles and young frogs. How many frogs are in the pond now? What does this do to the pond?
c. The farmer sprayed his field with DDT. 96% of of the bugs died. How many bugs were left? What does this do to the pond?

B. Play Web Game
1. Put the names of members of the ecosystem onto paper. You will need yarn.
2. Give the students each an identification card. (frog, water bug, etc.) Then start the yarn at one member. The yarn gets passed to something that affects the first member.
3. Continue passing until the web develops.
4. One member drops out; what happens?
5. Discuss interdependence of an ecosystem.

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Birds, Ecosystem

Integrated with:

SUBJECT Language Arts, Science, Physical Ed.

TOPIC/UNIT Animal Habitants - Food Chains
Animals - Habits & Movements

BEHAVIORAL OBJECTIVES

Cognitive:

Identify pictures of five wild animals common to our area, and their primary food and native habitat.

Describe two main differences between the wild and domestic.

Affective:

Indicate awareness of existence of individual differences in animals' habits and habitats by making statements such as "The animal's habits are different than that animal's.

Skills Used:

1. Write report of a favorite animal.
2. Collect pictures of animals in their natural habitats.
3. Record number of animals & birds seen.
4. Locomotor skills in bending and squatting positions.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts-Motivation
  A. Teacher introduces the poem called "The Tall Grass Zoo" (from With Skies and Wings, pp. 186-195, Ginn & Co., teacher's edition recommended) by saying: "The creatures in this poem are not wild animals or zoo animals, but they're very quiet creatures. Where can we find them? In your backyard! Let's read, shall we. Teacher reads the poem and discusses such ideas as:
    1. How could you find out more about these creatures?
    2. If you were one of these creatures, how would you want to be treated?
    3. Describe one of the creatures in the first person "I am.."

(Continued)

Outside or Community:

A. Visit a museum or zoo to see first-hand animal life. Notice natural habitat.
B. Collect & study a few special animals, such as mice, gerbils, etc. Keep in room.
C. Take a nature walk to a creek to observe frogs and crabs in action. Bring a crab, frog or cricket to school. Observe it in action.
D. Choose one of the above animals and read as much as you can about it. Report on its movements.
E. Encourage children to use magnifying glasses in their own "backyard zoo".
F. Bug's Eye View - Everyone stretches out, eyes on grass level, to see what the world is like to a bug. The blade of grass is like a tree! The pebble is mountain-size--to a bug. Big things like trees just don't show. People are just feet.

SUGGESTED RESOURCES

Publications:

Audubon Aids, Animals & How They Live and Audubon Mammal Study, 170 Na, ICE RMC
Curriculum for Elementary Physical Education, Mel Nicks
Childcraft, encyclopedia, World Book Co. (Vol. 4)
Familiar Animals of America, Will Barker, 1956
Science Is Exploring, Book 3, Marshall, Challand & Beauchamp, Scott, Foresman & Co.

(Continued)

Audio-Visual:

Filmstrips:
Vanishing Prairie, Walt Disney
The Living Desert, EBF
Mammals of the Tropical Forests, EBF
Marine Animals of the Northland, EBF
Films:
We Get Food From Plants And Animals, McGraw-Hill
Common Animals of the Woods, EBF

Community:

Museum
Zoo
Wildlife sanctuary
Farm

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

Concepts in Science, Book 3, Harcourt, Brace & World
The Last Free Bird, A. Harris Stone
Let Them Live, Dorothy P. Lathrop
Wildlife in Danger, Roy Pinney
Children of the Ark: The Rescue of the World's Vanishing Wildlife, Robert Gray
"Spiders and Silk", Audubon Aids, Insects and Spiders, ICE RMC, 170 Na

CLASSROOM (Continued)

B. Another poem, "Hurt No Living Thing", on p. 196 of the same book follows the above and can also be used to motivate.

II. Science

A. Look up and write reports on birds from a special environment, ex.-the desert, the sea, the woods, the jungle. Give reports or make a large wall chart when your research is completed.

B. Bird Tree - Find a big, bare branch or stick and hang it in some prominent place. Every time anyone sees a new bird, he draws it on cardboard, colors it with crayons, initials it as his, and ties it on the bird tree. How many new birds can be spotted in a week? Birds have names. Look them up in a bird book. Learn their names. It's more fun to say "cardinal" than just "red bird". Learn their shapes, too, and the way they fly. Who's the best birder?

C. Play a matching-lotto game or bingo game where you have cards with animal pictures, foods they eat, and natural habitat.

D. Read Charlotte's Web by E. B. White. Discuss with class the spider and survival in its habitat.

E. Class members build bird feeders for winter and places it where they can watch bird activities.

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

F. Record books made by class for one week. Report on live animals, animals on TV.

G. Discuss the term extinct. Ranger Rick magazines are excellent for articles about such animals.

H. Set up an aquarium and have children discover the food chain.

I. Make a bulletin board of these food chains and discuss with children.
Sun -- Grass -- Cows -- Milk -- Cheese -- Child
Sun -- Plants -- Butterflies -- Chicken -- Fox
Sun -- Plants -- Cows -- Children eating hamburgers
Sun -- Water plants -- Bugs -- Ducks
Sun -- Grass -- Rodents -- Eagle

III. Physical Education (in gym or outside)

A. Question the children about the ways animals move.

B. Direct them to try and move like:

1. An inchworm:
   - bend over until your hands touch the floor in front of you
   - rest on your hands and feet
   - slowly bring your feet up as close as you can to your hands
   - inch your hands forward
2. A crab:
   - squat down and reach back, putting both hands on the floor without sitting down
   - keeping your body stiff and in a straight line, walk forward, backward and sideways
3. A cricket:
   - squat and spread your knees
   - put your arms between your knees
   - put your arms between your knees and grasp the outside of your ankles with your hands
   - walk forward and backward, chirping like a cricket

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

4. A frog:
   - squat down with your hands placed on the floor slightly in front of your feet
   - jump forward a few feet lighting on your hands and feet at the same time

C. Relay races using the above animal movements can be used.

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Colors of Nature

Integrated with:

SUBJECT Art

TOPIC/UNIT Aesthetics - Color Theory

BEHAVIORAL OBJECTIVES

Cognitive:

Compare an ecosystem to a painting in terms of the materials needed to have a completed idea.

Affective:

Agree with the statement "All members of an ecosystem depend upon one another" with statements that support it.

Disagree with the statement "All members of an ecosystem depend upon one another" with statements that support this view.

Skills Used:

1. Mixing of paint.
2. Proper care of brush (cleaning, storage and use while painting).
3. Blending colors to achieve new ones.
4. Creative vocabulary skills.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

This lesson should be used after the students understand how an ecosystem or food chain works.

A. Discussion of art media.
    1. How various media are made usable by mixing with other elements or in conjunction with other media...thereby offering the young student a more practical and understandable explanation of what is meant by the term "ecosystem".
        Examples:
        - tempra is useless as a paint without adding water to it.
        - water is useless as a coloring agent until the paint mixes with it.
        - tempra and water mixed are still useless without a surface to put it on (paper) or an

(Continued

Outside or Community:

A. Visit a paint factory or hardware store to see how house paint is mixed and colors achieved.

SUGGESTED RESOURCES

Publications:

"Drawing With Mixed Media", M.B. Bowman, School Arts, 71:14-15 N 71

"Color Combinations Made Exciting", K.G. Kite, Arts & Activities, p. 24-26, F. '72

A Dictionary of Art Terms and Techniques, Ralph Mayer, Thomas Y. Crowel Co., New York, 1969

"Mixed Media Collage", J. Comins, School Arts, 71: 10-11 N '71

Audio—Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

applicator - brush, finger, stick, sponge, etc.
-species variation can be represented by variation in color, thickness of paint, type of applicator, etc.

B. Collect many paint charts from local hardware or paint stores. Observe colors blended to make new colors. Become familiar with the names for these new colors.

C. Children can create their own colors and names for them. Examples:

1. Rabbit nose pink.
2. Peanut butter brown.
3. Grape jelly purple.
4. Swiss cheese yellow.

Environmental:

CONCEPT NO. 3 - Carrying Capacity

ORIENTATION Animal Growth

Integrated with:

SUBJECT Science, Physical Education

TOPIC/UNIT Animals

BEHAVIORAL OBJECTIVES

Cognitive:

Identify the food supply when given a list of five animals.

List the three environmental factors necessary for an animal's survival.

List three environmental factors that limit or regulate the carrying capacity of a specified environment. (Cont'd)

Affective:

Defends his position as conservation-minded person; as an exterminator.

Indicates an awareness of factors favorable or detrimental to plant and animal life by freely responding to the question, "What things in your neighborhood are being done that will harm or help life?"

Skills Used:

1. Evaluate why some animals become extinct because of environmental factors or man-made factors.
2. Phy. ed. locomotor skills: running, tagging, dodging.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
  A. Discuss cases in which an animal is considered a pest by some and not by others, as rats, mosquitoes, pigeons, Dutch elm bark, beetles.
  B. Introduce by riddle or "guess who" paragraph the animals which are becoming extinct, such as carrier pigeon, marten, lynx, bald eagle, osprey, fisher. Children will write individual reports. See the Department of Natural Resources publication, Endangered Animals in Wisconsin (free).
  C. List the environmental factors essential for a pond, marsh, grassland, ocean, woodland, yard. Paint picture of each environment.

(Continued)

Outside or Community:

A. Have a conservationist and exterminator talk to the class, explaining their job, its effectiveness and relation to endangered species, if any.
B. Speaker from Forest Department on balance of nature.
C. Field trip to nature area for study.

SUGGESTED RESOURCES

Publications:

Audubon Aids, "Animals and How They Live" and "Audubon Mammal Study", ICE RMC, 170 Na

The Last Free Bird, A. Harris Stone

Let Them Live, Dorothy Lathrop

Wildlife in Danger, Roy Pinney

Wildlife in Danger, Ivah Green

America's Endangered Wildlife, George Laycock

Audio–Visual:

Films:

Life In A Vacant Lot, Encyclopedia Britannica

The Desert Community, Encyclopedia Britannica

Animal Predators and the Balance of Nature, BAVI

Study prints:

Wild Animals, group 1 and Wildlife Conservation, Herbert Lowman

(Continued)

Community:

Exterminator

Conservationist

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)

Kit:

Environmental Quality Index - America Is In Trouble, National Wildlife Federation, 1971, ICE RMC, KT 9

Filmstrips:

Adaptations in Animals, General Science Film Series

How Animals Live, Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois 60614

COGNITIVE (Continued)

Describe the probable effect of limiting one of the three environmental factors on an environment.

CLASSROOM (Continued)

D. Each child chooses an animal, dramatize how you make home, get food, and means of survival.

II. Physical Education
  A. The Formation: Two lines - 20', 40' or 50' apart. Players on one line, chaser in the center.
    1. Players are named for different animals: rabbit, fox, bear, tiger, moose.
    2. Chaser calls name of any animal he chooses. Ex.-"Deer!" All players who are deer run to opposite end of gym or playground. Chaser tries to tag them. Any player caught takes the part of chaser. The original chaser becomes another animal, thus having eliminated one or more of a certain species. The new chaser or chasers then all call on another group of animals.
    3. Modify game by creating an imbalance in numbers and discuss effects.

Environmental:

CONCEPT NO. 3 - Carrying Capacity

ORIENTATION Resources & Communities

Integrated with:

SUBJECT Social Studies

TOPIC/UNIT Living Things, Animal & Plant Habitats

BEHAVIORAL OBJECTIVES

Cognitive:

List factors which are common to both plants and animals in order to live in a particular place.

Determine whether a given situation will result in an increase or decrease in life in the area and support the decision.

Affective:

Freely respond with examples when asked "Who in your neighborhood or family depends on someone else for food, clothing or shelter?"

Skills Used:

1. Research skill.
2. Communication and reference skills.
3. Skill of participating in group work.
4. Critical thinking.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Motivation. Show pictures under the opaque projector of forest areas. Have children decide what makes up this community (plants and animals). Name some of the individual members of the community. The following ideas are to be discussed:
   1. What do the members of this community share?
      a. natural resources
      b. food
      c. shelters
   2. Does this look like a good area to have a community?
   3. What might determine the size of a forest community?
      a. food supply (population)
      b. change in living conditions
         1) seasons--some migrate, natural disasters, as floods, tornadoes, etc. disease.

(Continued)

Outside or Community:

A. Visit a pond area to find plants and animals there and decide upon common factors among them.
B. Visit a museum to observe various habitats common to both plants and animals of specific areas.
C. Use ICE field activity guide "Who Was Here", available from ICE RMC.

SUGGESTED RESOURCES

Publications:

Audubon Aids, "Ecology" and "Life in the Pond", ICE RMC, 170 Na
Poem, "Night", William Blake
Strange Companions in Nature, Olive L.
Follow the Brook, Lathrop
Swamp Spring, Carrick
Minnesota Math and Science Teaching Project, 1969, ICE RMC, 110 Un
Animal Tracks, booklet with pictures, DNR, Madison

Audio—Visual:

Kit:
Recycling Resources, ICE RMC, SG 6, simulation game
Filmstrips:
Communities of Living Things, McGraw-Hill, ICE RMC, FS St6
Animal World Series, McGraw-Hill, ICE RMC, FS St5

Community:

Florist
Farmer
DNR resource person

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

c. Man (hunting, pollution, fires).

4. In what ways do members of a forest community depend upon one another?

B. Children will choose a plant or animal and will research their habits and habitats. Groups of two or three can be formed to do this research. Each group will gather and record specific information and will report their findings to the class. Research the following information and record on the following worksheet. (Teacher can duplicate this worksheet at will.)

Worksheet

Find this information:

1. How does the member get its food?
2. What kind of food does it eat?
3. Does the animal stay in one community or move to others?
4. Why and when does it move?
5. Does this member have any enemies?
6. How much does the animal weigh? Length? Height?
7. Color?
8. How many does the animal produce?
9. Does this animal depend upon any other animals? For what?
10. Where does the animal find shelter?
11. Tell some interesting things about this animal.

Environmental:

CONCEPT NO. 3 - Carrying Capacity

ORIENTATION Overpopulation

Integrated with:

SUBJECT Art

TOPIC/UNIT Drawing - Splash Painting

BEHAVIORAL OBJECTIVES

Cognitive:

Illustrate the definition of a crowd by spattering paint and circling dots on paper.

Affective:

Demonstrate awareness of overpopulation by using the term in situations where it is appropriate, rather than other terms such as "too many".

Skills Used:

1. Splash painting
2. Drawing
3. Perspective
    a. Overlapping
4. Awareness

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Splash Paint
    1. Splash some paint on a sheet of paper.
    2. Draw a person's head for each dot of paint. If splatters or dots are relatively close together, a crowd is created.
    3. Go one step further and create a specific crowd--circus, parade, ballgame, race track, etc.
    4. Use construction paper figures etc. to overlap over crowd to create composition.
    5. Illustrate a specific crowd which you would be a member of.

Outside or Community:

A. Children could view a number of group activities on the playground, in an assembly, in a store, church, at a parade...to visually understand dynamics of a crowd.
B. Collect pictures of crowds for reference.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: "Aesthetic Education For What?", Helen Diemert (art in relation to overcrowdedness), School Arts, April '72, p. 37 "This Is My Crowd", W.S. Lifschitz, il., Arts and Activities, 63:16-18 De '68 When Paint Is Free; Non-Brush Painting Techniques, B. Wasserman, il., Arts and Activities, 65:23-3 Ap '69 **Audio–Visual:** Film: A World Is Born, ICE RMC, Film #220 Posters: Solving the Problems of Overpopulation, The Effects of Overpopulation, The Population Explosion, poster series, ICE RMC, 190 Ki McGraw-Hill Study Prints, "Diversity of Population", ICE RMC, KT 38 **Community:**	

Environmental:

CONCEPT NO. 4 - Water

ORIENTATION Adequate Water Supply

Integrated with:

SUBJECT Language Arts, Physical Education

TOPIC/UNIT Describing Word (Adjective) Water Quality

BEHAVIORAL OBJECTIVES

Cognitive:

List three possible pollutants of water.

Classify given words as either relating to pure water or to impure water.

Select pictures or illustrations of water conditions and classify them as either relating to pure water or impure water.

Affective:

Demonstrate an awareness of items that pollute a stream by making statements such as "Don't throw that into the river because it'll pollute it" or "Take that out of the river to make it more pure".

Skills Used:

1. Sentence writing
2. Spelling
3. Choosing descriptive words
4. Running and tagging
5. Fairness in play
6. Dodging

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
   A. The teacher will put the word "water" on the board.
      1. The students will list any words which describe water.
      2. These words will then be divided into two groups.
         a. Words which describe water which could be pure.
         b. Words which could describe impure water.
      3. Sentences can be written using any of the words from above list.
      4. Children will choose five or more words to learn to spell.
      5. Thinking of these words, children will discuss the need for all of us to have good, pure water.
   B. Language arts vocabulary fishing game.

(Continued)

Outside or Community:

A. Take water samples. Let water settle and examine sediment with hand lens and microscope. Children should then list four things that pollute, and four ways that pollution of a body of surface water occurs.
   1. Possible correlation with classroom teacher's scheduled visit to a polluted stream.
   2. Visit sanitation department to learn of water treatment in your area.
   3. George Howlett, Project ICE office, has pictures from water department to show and discuss.
   4. Contact local water department to request audio-visual aids covering the general theme of how water gets to your house.

SUGGESTED RESOURCES

Publications:

Audubon Aids, "Conservation", ICE RMC, 170 Na

Environmental Kit, Wisc. Dept. of Natural Resources, ICE RMC, 100 Wi

The Clean Brook, Margaret Bartlett

Clean Streets, Clean Water, Clean Air, Cynthia Chapin

"The Adventures of Walter Waterdrop", U.S. Environmental Protection Agency, Region VII, Kansas City, MO 64106 (free)

(Continued)

Audio–Visual:

Films:

Your Friend the Water - Clean and Dirty, BAVI

Water, Water Everywhere, BAVI

Community:

River or stream area

Water treatment personnel man

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Needed: Clean Air", U.S. Environmental Protection Agency, Washington, D. C. 20460 (free).

CLASSROOM (Continued)

The purpose of this game is to build vocabulary skills using water quality as a theme.

1. Make up two lists of words (fish of Wisconsin and water pollutants). Record each word on a fish made out of construction paper and to each fish attach a paper clip. Put the fish in a large cardboard box, representing a lake. On the end of a cane pole, attach a line which has a magnet tied to it. Students take turns fishing and discuss what they've caught. Examples:
   Fish - walleye, northern
   Pollutants - pop can, old tire
   After the game, discuss the water quality of this lake. How could we improve the lake?

C. Students create names to personalize the polluting object that they were. Teacher will stress specific and descriptive word choice. Names and accompanying pictures may be put up on a bulletin board.

II. Physical Education Game
  A. Uncle Sam Game
    1. Divide the play area by two goals. Children are divided into polluters. One child is selected as Uncle Sam. He stands in the middle. Children call: "Uncle Sam, Uncle Sam, may we cross your polluted dam?" Uncle Sam replies, "Yes, you may if you are a coke bottle". They get a free run across. Those not mentioned remain on the line until Uncle Sam calls "Go". They must cross the opposite end without being caught. If caught he goes to sideline, after three turns, Uncle Sam chooses someone who is not caught to take his place. (Boys pick girls and reverse). When

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: **Audio–Visual:** **Community:**	CLASSROOM (Continued) new "it" is chosen, all those caught return to game. 2. Suggested list of polluters: paper, cans, cars, trucks, planes, factories, homes, garbage, rubbish.

Environmental:

CONCEPT NO. 4 - Water

ORIENTATION Water Supply and Consumption

Integrated with:

SUBJECT Science, Math

TOPIC/UNIT Water - Water Cycle

BEHAVIORAL OBJECTIVES

Cognitive:

Define the water cycle.

Identify a diagram or illustration of the water cycle and the major parts of the cycle.

List three ways which can be used to conserve water in the home.

Affective:

Freely agree with the statement "Water needs to be conserved for the future".

Proposes a way the individual student could conserve water for the future.

Skills Used:

1. List things that use water.
2. Develop a definition of water pollution.
3. Compare kinds of water and list things that contaminate it.
4. Counting and recording.
5. Discussion
6. Charting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   - A. Conduct an experiment showing what happens when you wash a greasy or dirty cloth with water, with soap and water and with detergent and water.
   - B. Collect pictures of things and various ways we use water in the home.
   - C. Make a bulletin board of the water cycle (clouds, land, lake, evaporation to clouds).
   - D. Compare samples of tap water, deep well water, pond, lake and fresh rain water for turbility, living and non-living things.

II. Math
   - A. The student will count and record the number of times he uses water in a three-day period by estimating it in

(Continued)

Outside or Community:

A. Visit water department and water treatment plant, also sewage plant. Check age requirements.

B. Have an engineer from a local industry, ex.-paper, tell how his company uses and re-cycles the water into the stream or river.

C. Have representative of conservation department talk and demonstrate ways to save water.

SUGGESTED RESOURCES

Publications:

A World in a Drop of Water, Silverstein, Alvin & Virginia

Let's Go to Stop Water Pollution, Michael Chester

Rain Drop Splash, Tresselt

"The Brook", poem, Alfred Lord Tennyson

Running Water, J.C. MacBean, ICE RMC, 120 Ma5

Story of Water Supply (free in nos. of 35) Menasha Electric & Water Utility, P.O. Box 340, Menasha, WI (comic book)

Audio-Visual:

Films: (from BAVI)

- Visit to the Waterworks
- Your Friend the Water - Clean and Dirty
- Conservation - Enough Water for Everyone
- Water, Water Everywhere
- City Water Supply
- Water
- Water Pollution

Can I Drink the Water?, ecology kit, Urban Systems, Inc.

Community:

Water department
Water treatment plant
Sewage plant
Resource personnel from industry
City water department
Conservation department

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

standard measurement. Student-created chart to be signed by the parents.

1. Water used for drinking.
2. Water used for washing, bathing, tooth brushing, etc.
3. Water used in laundering.
4. Water used in washing dishes and cleaning home.
5. Amount used in other ways by child.

B. He will make a chart showing amount of water used daily and weekly by an individual in cups.

C. Make chart showing where water comes from.

D. After discussing how water could be saved, have child record and compare the amount of water used in brushing teeth at the beginning of the activity with amount used after class discussion on conserving water.

E. Each student will bring a one quart container to class (milk carton, plastic bottle--preferably unbreakable) for two consecutive days. Students will be limited to one quart of water per day. This quart will be used for all activities--drinking, art work, washing hands, etc. After two days, teacher and class will discuss feelings, reactions and values of this two-day experiment. Sample questions for discussion:

1. What were some of the feelings you had because of the small amount of water you were able to use?
2. If this would happen, what could you do to conserve water each day? (Teacher will record on the chalkboard each new idea.)
3. What do you think would cause shortages of the amount of usable water in our country?
4. Why is water important to us?

Environmental:

CONCEPT NO. 5 - Air

ORIENTATION Air Quality

Integrated with:

SUBJECT Language Arts, Music

TOPIC/UNIT Clean Air

BEHAVIORAL OBJECTIVES

Cognitive:

Describe air by using statements of its characteristics of weight, color, smell, need to support life, etc.

Include the characteristics of air in a poem or prose.

Include the characteristics of polluted air in the rhythmic pattern of a known melody.

Affective:

Demonstrate their desire for clean air by suggesting ways to clean up the air without the teacher asking for suggestions.

Skills Used:

1. Vocabulary development.
2. Poem or prose writing.
3. Lyric writing.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
  A. Have children give words which describe air as the teacher lists them on board. (muggy, clean, foggy, smelly, polluted)
  B. Discuss meaning of words bringing in the fact that living organisms need air.
  C. Class write a composite poem or prose about air.
  D. Advanced students may wish to compose their own.

II. Music
  A. Review a familiar song.
    1. Blue Tail Fly
    2. My Bonnie Lies Over The Ocean
    3. Where, O Where Has My Little Dog Gone
    4. Twinkle, Twinkle Little Star
    5. London Bridge Is Falling Down

(Continued)

Outside or Community:

A. Prepare poems and songs for PTA.
B. Sing for other classes.
C. Each child prepare his own song. Each child select own tune. Record song on tape.
D. Solo performance.
E. Record on tape.

SUGGESTED RESOURCES

Publications:

Audubon Aids, "Our Threatened Air", ICE RMC, 170 Na

Clean Air, Sparkling Water: The Fight Against Pollution, Dorothy E. Shuttlesworth, 1968

Clean Streets, Clean Air, Clean Water, Cynthia Chapin

Sources of pollution information:

Write to: Citizens for Clean Air
502 Park Avenue
New York, NY 10022

Audio–Visual:

Film:

The Runaround, available free from local TB and Respiratory Disease Association

Filmstrip:

Environmental Pollution - Our World in Crisis, Ward's Natural Science Estab., Inc., 1969, ICE RMC, FS Stl

Kit:

Environmental Action - No Time to Waste, Continental Can Co., 1971, ICE RMC, KT 10

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

B. Discussion related to air pollution listing responses on the board.
   1. What do you like about clean air?
   2. What do you like about the blue sky?
   3. What does polluted air look like?

C. Write new words to the familiar melody along the line of air pollution.

Environmental:

CONCEPT NO. 5 - Air

ORIENTATION Clean Air

Integrated with:

SUBJECT Art

TOPIC/UNIT Air Pollution Posters and Kite

BEHAVIORAL OBJECTIVES

Cognitive:

Produce an illustration (printing, poster, etc.) in which the elements of air pollution are described.

Compare the odor of clean air and impure air.

Affective:

Demonstrate sensitivity to air pollution by bringing in examples in the form of illustrations or descriptions from trips taken by the students.

Skills Used:

1. Cut
2. Paste
3. Collecting pictures
4. Drawing
5. Discussion
6. Awareness

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. Create a poster to communicate all cut or torn letters, substitute magazine pictures for some letters or words. Work large.

B. Create a group poster project having each child design one three-foot letter of the clean air slogan. The letter could depict elements of air pollution with various media--alternate: letters may contain collage or montage material. Materials--sketches, markers, cut paper.

C. Discuss what type of air would be suitable for kite flying. Make kites that could actually be flown possibly in a class contest. Kite design would depict air pollution, super heroes or villains.
   1. Tissue paper or any lightweight paper.

Outside or Community:

A. Collect magazine pictures and lettering to be used in clean air posters and collages.

B. If there is an open field available near your school, have students fly their kites.

C. Invite a rescue squad member to demonstrate mouth-to-mouth life saving techniques.

SUGGESTED RESOURCES

Publications:

"S.I.T.E. A Suggested Answer to the Pollution in Art Teacher Development", A.W. Beck, il., School Arts, 71:36-7, Sept. '71
In Quest of Cleaner Air and Water, American Iron & Steel Institute
"Two Sticker Kites", D. Richter
Audubon Aids, "Our Threatened Air", ICE RMC, 170 Na
"Psychedelic Posters", M.F. Bolger, School Arts, p. 40, Sept. '71
Lettering Today, John Brinkley
(Continued)

Audio–Visual:

Film:
The Alphabet in Art, BAVI
Game:
Smog; The Air Pollution Game, Urban Systems, Inc., 1970, ICE RMC, SG 1

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Collage and Color", Kelly D. Waldman, bibliography, Art News, 70:44-7, D '71.
"Making It In 3-D", E. Stein, School Arts, 71:10-13, O '71
"Mixed Media Collage", J. Comins, School Arts, 71:10-11 N '71
The Caboose Who Got Loose, Peet

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Environmental:

CONCEPT NO. 5 - Air

ORIENTATION Air Quality

Integrated with:

SUBJECT Social Studies, Art

TOPIC/UNIT Air

BEHAVIORAL OBJECTIVES

Cognitive:

Demonstrate through dramatization how the local government works to solve an air quality problem.

Affective:

The student shows awareness of polluted air by urging parents to change air quality in their communities through the channels of local government through letter writing.

Skills Used:

1. Communication
2. Dramatizing
3. Participating in group work
4. Interviewing & reporting
5. Construction
6. Cutting and pasting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Discuss in simple terms the basic type of government in the community, i.e. elected & non-elected officials; functions of government; how government gets it authority; how laws are made and problems in area are solved.
   B. Children dramatize a community air quality problem. Some problems:
      1. Burning leaves
      2. Traffic problems and rapid transit ideas
      3. Local incinerators

      Let children take the roles of various citizens' groups and public officials such as mayor, councilman, city manager and county commissioner. Guide them in discussing the problem.

(Continued)

Outside or Community:

A. Take a survey of neighborhood to see what neighbors think should be done about air quality problem in their community. Note: The class will develop an interview form before the survey is taken.

B. Invite a local government leader to talk to class about government problems and how local governments work together to solve problems.

C. Visit City Hall and see where things happen.

D. Collect boxes and tubes of various sizes for pollution bugs.

E. Students could spend some time outside studying bugs with magnifying glasses. They should become aware of the many parts of a bug, that they may transfer this knowledge to the project and make a better air pollution bug.

SUGGESTED RESOURCES

Publications:

Audubon Aids, "Our Threatened Air", ICE RMC, 170 Na

Investigating Man's World, Scott Foresman & Co., 1970

The Caboose Who Got Loose, Peet

"Carton Creatures", H. Weller, Arts and Activities, p. 16-18, Jan. '72

"Carve a Box! Exploration Into Space and Form", L. Olson, Arts and Activities, p. 24-27, Dec. '71.

(Continued)

Audio—Visual:

Kit:

Environmental Action - No Time To Waste, Continental Can Co., 1971, ICE RMC, KT 10

Community:

Local government leaders
City Hall
Neighbors

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Paper Mache Bowls and Boxes", S. Grasezow, School Arts, 71:26, March '72

"Recreating the Mediocre and the Discard", B. Stubbins, School Arts, 70:11, March '71

"From the Scrap Box", H. Ferry, Instructor, 80:44, Feb. '71

"From Classroom Grocery Store to Imaginary Zoo", S.B. Stevens, il., School Arts, 70:8, Sept. '70

Needed: Clean Air, available free from U.S. Environmental Protection Agency, Washington, D.C.

Clean Streets, Clean Air, Clean Water, Cynthia Chapin

CLASSROOM (Continued)

C. Dramatize a radio or TV interview between mayor or city councilman and a radio or TV news reporter. Have pupils take air quality problem in community and the interview is being held to see what the mayor or councilman feels should be done to solve it.

II. Art

A. Construct an air pollution bug from boxes, tubes and various materials covering it with art tape, tempra or paper mache. Discuss what kind of creature is destroying our clean air.

1. Notching and scoring will help reinforce and balance sculpture.

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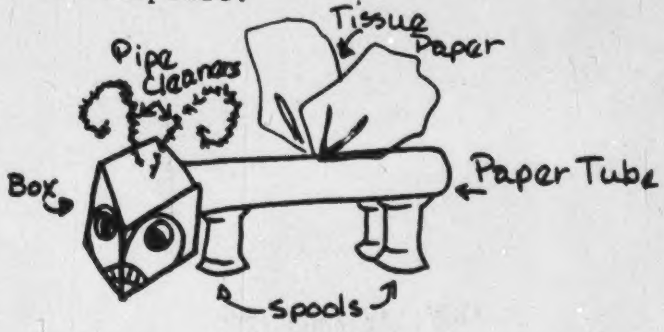

Environmental:

CONCEPT NO. 6 - Resources

ORIENTATION Resource Usage

Integrated with:

SUBJECT Social Studies

TOPIC/UNIT Desert Regions

BEHAVIORAL OBJECTIVES

Cognitive:

Compare a desert with the local area by listing natural resources that the local area has that the desert does not.

Indicate the characteristic plant and animal life of the desert by making a desert diorama on bulletin board.

(Continued)

Affective:

Demonstrate an awareness that life in a desert region differs from other geographical regions because of the unequal distributions of natural resources by freely providing examples that indicate this.

Skills Used:

1. Map skills
   a. Analysis of maps
   b. Location
   c. Identifying & recognizing
2. Recognizing characteristics of desert life
3. Discussion of cause & effect

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Show pictures of deserts.
B. Talk about occupations of desert inhabitants.
C. Discuss what irrigation is and how it changes deserts.
D. Let pupils infer why deserts are sparsely populated.
E. Make a desert diorama.
F. Make a bulletin board.

Outside or Community:

A. Trip to irrigated field (i.e. strawberry)
   1. Discussion of necessity of irrigation.
   2. Natural and man-made irrigation.
   3. Desert regions - limited irrigation.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: National Geographic magazines Regions and Social Needs, Laidlow, Grade 3 (Soc. St. text) Childcraft, encyclopedia The Young Desert, Atwood, Ann The Indians Knew, Tillie Pine Audubon Aids, "Ecology" and "Knife in the Desert", ICE RMC, 170 Na **Audio–Visual:** Films - Filmstrips: We Explore the Desert, BAVI What Makes a Desert, BAVI Kit: Animal and Plant Communities, study prints, ICE RMC, KT 38 **Community:** Travel bureaus, airlines (brochures, posters, folders)	COGNITIVE (Continued) Locate and label major desert areas of the world when given an outline map of the world.

Environmental:

CONCEPT NO 6 - Resources

ORIENTATION Resource Usage

Integrated with:

SUBJECT Social Studies, Art

TOPIC/UNIT Cold Regions

BEHAVIORAL OBJECTIVES

Cognitive:

Explain how Eskimos use natural resources of the area to overcome obstacles of a cold, barren environment in getting food, to provide housing and to travel.

Affective:

Willingly find books and articles that describe how Eskimos use natural resources to get food, to provide housing and to travel and give a report on them.

Demonstrate an awareness that life in various regions differs because of the unequal distribution of natural resources by bringing examples to class.

Skills Used:

1. Map skills
   a. Locating regions
   b. Identifying
   c. Recognizing
2. Problem solving
3. Discussing
4. Vocabulary skills
5. Art skills--mural, frieze

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Make a report on different kinds of whales. Call attention to the endangered species of whales.
   B. Problem-solving discussion - "If you lived in a treeless country, what could you use for a bow?, arrow?, shafts?

II. Art
   A. Make a mural depicting the activities of a mother and a father in an Eskimo home. Then have the students make another showing activities of their own homes.
   B. Make a frieze or mural of Arctic animals.

Outside or Community:

A. Teacher and students will try to find pictures and stories about Eskimos, polar bears, whales and the North Pole.

B. Visit a house under construction in the neighborhood. Observe the materials being used. List or chart them as: cement blocks, cement, sand, lumber, nails, bricks, etc. Where were they obtained? How and by whom were they made? Why didn't the Eskimo use these types of materials?

C. Visit the nearby museum Eskimo exhibit. Note tools and other equipment.

D. Invite a resource person in to talk to group.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Homes Around the World, Kathryn Jackson, Silver Burdett, 1957 Living in Places Far & Near, John Jarolimek, 1969 Eskimos Without Igloos, 1969 The Eskimos Knew, Tillie Pine **Audio–Visual:** Filmstrips: Eskimo Family, Encyclopedia Britannica Children of the North Pole, Harcourt, Brace, 1963 Tikta Liklak, Harcourt, Brace, 1965 Modern Eskimo, Encyclopedia Britannica **Community:** Museum Resource people	

Environmental:

CONCEPT NO. 6 - Resources

ORIENTATION Resource Conservation

Integrated with:

SUBJECT Science, Reading

TOPIC/UNIT Natural Resources

BEHAVIORAL OBJECTIVES

Cognitive:

Name four natural resources & their origins in their neighborhood, school or home.

List five ways in which he could help to conserve natural resources.

Affective:

Acknowledge that man-made objects have a natural origin by tracing examples to their origin.

Skills Used:

1. Measuring a plot of ground.
2. Examine and observe water, forest, pond.
3. Collection of samples of natural resources

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Identify and list natural resources in your area--water, land, rocks, wildlife, fossils, plants and topsoil.
   B. Game - Using tagboard strips, teacher will record on individual cards the names of six specific natural resources in sets of three and put them in a box. Teacher will then present a problem in which one or more of the natural resources would have been consumed. Student would decide on which natural resources would be affected by this problem. The appropriate cards would be drawn out of the box by students.

(Continued)

Outside or Community:

A. Walk inside and outside your school with this checklist and a pencil. Do two things: (1) Check all of the materials in list "A" that you see around your school, (2) Draw a line from the materials you checked in list "A" to the places you saw them in list "B".

A

___wood
___slate
___glass
___brick
___marble
___granite
___bluestone
___fieldstone
___tile
___porcelain
___concrete
___limestone

B

window
roof
floor
wall
ceiling
blackboard
stairs
door
sink
window sill

(Continued)

SUGGESTED RESOURCES

Publications:

A Place To Live, National Audubon Society, ICE RMC, 110 A

America's Treasure, W. Maxwell Reed

Great Heritage, Katherine Shippen

Rivers and Watersheds in America's Future, Elizabeth Helfman

Wilderness Bill of Rights, William Douglas

Where the Brook Begins, Margaret Farrington Bartlett

(Continued)

Audio–Visual:

Filmstrips:
- Rocks and Minerals
- How Soil Is Formed
- The Story of Soil
- Animals of the Forest, McGraw-Hill, ICE RMC, FS St 8
- Conserving Our Soil and Water, Popular Science Pub. Co.
- The Living Desert, EBF
- The Ocean of Air We Live In, Popular Science Pub. Co.
- Our National Forest, U.S. Forest Service, Washington, D.C.

(Continued)

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

Living Things, Jeanne Bendrick

Clean Streets, Clean Water, Clean Air, Cynthia Chapin

The Last Free Bird, A. Harris Stone

Alligator Hole, Julian May

Action at Paradise Marsh, Ester Wier

AUDIO-VISUAL (Continued)

Kits:
- Where Does It Come From?, Eye Gate House, ICE RMC, KT 50
- Conservation, pictures, American Petroleum Institute, New York

Films:
- Conserving Our Mineral Resources Today, Coronet
- Our Endangered Wildlife, McGraw-Hill
- Conservation for the First Time, McGraw-Hill
- The Problem With Water Is, McGraw-Hill
- The Food Population, McGraw-Hill
- Beaver Dam, McGraw-Hill

CLASSROOM (Continued)

1. An office building is going up in your town and it will need ten large glass windows. What natural resource would we have to draw out of the box?
2. We want to make 10,000 pounds of paper. What natural resources will we need to use to make this paper?

C. Talk about the recreational uses and possibilities on the Fox River.

OUTSIDE ACTIVITIES (Continued)

How many different building materials are on the outside of your school?

____ one
____ two
____ three
____ four
____ five
____ six
____ seven
____ more than seven

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

OUTSIDE ACTIVITIES (Continued)

Which one is closest to the ground?

____ concrete	____ brick	____ fieldstone
____ limestone	____ wood	____ other

Make a bulletin board drawing of the outside of the school and the school grounds. Indicate the location of different building materials, e.g. brick walls, glass windows, granite foundation, slate roof.

Contact local Chamber of Commerce for brochures or slides of recreational areas near your community.

Environmental:

CONCEPT NO. 6 - Resources

ORIENTATION Natural Resources

Integrated with:

SUBJECT Science, Math

TOPIC/UNIT Electricity

BEHAVIORAL OBJECTIVES

Cognitive:
Indicate the increase in electrical appliance usage during the past 25 years through the use of a graph.
Compare the usage of electrical appliances by individuals and families within the class.
Explain the importance of conserving electricity using the graphs as a basis.

Affective:
Demonstrate the effects of their efforts in conserving electricity in their own homes.

Skills Used:
1. Observing
2. Experimenting with electric current.
3. Draw inferences from charts made & information gathered as to how to use this energy wisely.
4. Reading electric meter and control dials on appliances.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
    A. Each child will list the electrical appliances at home and will count the number of times he uses electricity in one day, ex.-lights, electric toothbrush, can opener, etc.
    B. List and chart the electrical appliances used 25 years ago and those used today. Draw the conclusion that there are more people who demand or need more electricity than 25 years ago. Contact Wis. Public Service for information.
    C. Discuss paying house electric bill and how electric current is used. Bring electric bill from home. Pretend that a family electricity bill has doubled. List all the reasons why the increase.

(Continued)

Outside or Community:

A. Visit a nearby dam that produces electricity or write the Ford Company, St. Paul, Minnesota to find out about their dam-powered turbines.
B. Visit the Wisconsin Public Service plant in your area, or have a WPS representative speak to the class.

SUGGESTED RESOURCES

Publications:

Science Is Exploring, Scott-Foresman, pp. 46-62, 1965

Easy Science Experiments, Kleinman, Holt Pub. Co., 1959, pp. 89-96

Audio–Visual:

Films:
- Electric Circuits, McGraw-Hill
- Electricity for Beginners, Coronet
- Electricity and How It is Made, EBF
- Electricity: How To Make A Circuit, EBF

Filmstrip:
- Electricity, EBF

Kit:
- How We Hear, filmstrip and record, Beltone Hearing Service

Community:

Wisconsin Public Service (films, brochures, representative)

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

1. Students can make an individual inventory of his family showing ways they could conserve electricity.

D. Find articles on large city blackouts and brownouts and discuss need for using electric power wisely. Why does a brownout occur? Have the children trace electrical energy back to its original source. Suppose coal is used as a source of energy for generating power in your community. Where does coal get its energy? If the source of energy for your locality is water stored behind a dam, where did this energy come from? Dramatize by class-written skits the convenience of electrical power in the home and the inconvenience caused by a blackout.

E. Draw clock faces or control dials and demonstrate how to read an electric meter, oven, thermostat, etc.

F. Class list sources of electric power (in case of power plants, transformers, give known community locations). Sources of power: dry cell, storage battery, wet cell, generators powered by gasoline, steam, running water. Individual projects possible.

G. Relist these sources as stored and consumable.

H. Do experiments from various texts with dry cells, wiring lights, bell, construct electric magnets.

I. Class construct bulletin board or large chart of magazine pictures of uses of electricity.

J. List electrical appliances along with those that require no electricity but are powered by man's manual energy, e.g. electric beater vs. hand beater, can openers, electric brooms, hedge trimmers, knives, etc. Children demonstrate using both types of appliances.

Environmental:

CONCEPT NO. 6 - Resources

ORIENTATION Resource Distribution

Integrated with:

SUBJECT Art

TOPIC/UNIT Texture Rubbings, Pen & Ink, Collage

BEHAVIORAL OBJECTIVES

Cognitive:

Construct a picture utilizing the rubbing textures he has obtained.

Affective:

Demonstrate awareness of textures in nature by wanting to work in direct contact with them.

Skills Used:

1. Rubbing techniques.
2. Design principles.
3. Perspective.
4. Texture awareness
5. Pen and ink
6. Cut
7. Paste
8. Observation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Motivating activity
   1. Give students several objects to feel and describe--include objects with a variety of textures.
   2. On the chalkboard write:
      Which is more smooth?
      A window pane or a stuffed chair?
      A baby's face or its father's face?
      A gravel walk or a bare waxed floor?
      A handkerchief or a washcloth?
      The tread on a tire of a car or the car windows?
      A ripe tomato or a ripe strawberry?
      A newspaper or a sheet of sandpaper?
      New ice on a pond or ice frozen from slush in the street?
      A board just sawed or this board after sanding?

(Continued)

Outside or Community:

A. Take a walk to discover textures in the environment. Rubbings could be done at this time also.

B. Field trip to a local fabric store, leather company, department store, etc. to contrast man-made textures with natural textures.

C. Use ICE field activity guide "Colors, Shapes (Patterns), and Textures in Nature". See complete field guide attached.

SUGGESTED RESOURCES

Publications:

That's A Rub Arts and Act, Janitz

Audio—Visual:

The Art of Seeing (Texture), Warren Scholoot Pro. Inc.

Film:
Discovering Texture, BAVI

Kit:
Environmental Awareness, ICE RMC, KT-16

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

A leather coat or a burlap bag?
A turtle or an eel?
Your eyebrows or your lips?
Woolen mitts or cotton gloves?

3. Students draw and label five objects of their own--which have a smooth texture.

B. Texture Rubbings
   1. Make a variety of crayon rubbings from nature (one might also include other interesting textures).
   2. Using rubbings, cut out suggested shapes, e.g. tree texture, a tree cross hatch texture, body of a fish, rough stipple texture, a snake, etc.)
   3. Glue these shapes to a background piece of paper to create a picture. Stress filling space.

C. Develop a design consisting of six or seven related shapes. Stress balance and overlapping.

D. Create textured patterns by using various combinations of pen strokes (cross hatching, stippling, variations and combinations).

E. Huff and Puff Designs
   Shelf paper is good for this, because the paper shouldn't be too absorbent.
   Near the bottom of the paper, the child drops a blob of paint. Then he takes a drinking straw and without touching the paint, blows it around the paper in any design he likes. The first attempt is likely to look like a tree or plant, especially if a dark color was used. Smaller blobs of brighter color can be blown around it so as to look like flowers.
   As the child learns how to handle the colors and the straw, the designs will take bolder and more original forms. Balance and interesting color combinations will begin to show up.

Project I-C-E
Serving CESA' 3-8-9
1927 Main Street
Green Bay, Wisconsin 54301
R. Kellner

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Grades 1-3

COLORS, SHAPES (PATTERNS), AND TEXTURES IN NATURE
(art, language arts, science)

Purposes: To see how design, change, and variety in nature add beauty and enjoyment.

To develop observation skills.

To communicate these ideas visually/verbally

Directions: As you walk in the woods, take a good look around. Take your time, walk slowly and stop as many times as you want. You'll see brand new colors, or colors you haven't seen for awhile. Most animals only see shades of black and white--like a black & white TV set. Animals miss out on the fun of color, but you're lucky. You can enjoy colors.

Your first task will help you see more colors.

1. Name or draw three objects you see during your walk that have new or different colors. Under each name or picture--write a few words to describe the color. This will help you when you mix the color back in class. Here's one example.

Name Leaf Picture:

Description muddy yellow edges,
bright green centers

a. Name ______________________ Picture:

Description ________________
____

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b. Name ______________________ Picture:

Description ________________

____

c. Name ______________________ Picture:

Description ________________

____

2. Your second task is like making a paper fossil.

Directions:

   a. During your walk, pick out two hard objects you like.
   b. Next, use blank paper and place a sheet over part of the object.
   c. Use a crayon or pencil to get a picture of the object's surface or textures. This is called a rubbing.
   d. Back in class, your teacher will hang the rubbings to dress up the room.

3. Look for patterns or shapes in nature and draw two of these shapes.

a. b.

4. If you have time, you may want to collect some interesting objects to make a collage back in class. Be careful not to damage or uproot anything.

Environmental:

CONCEPT NO. 7 - Land Use

ORIENTATION Population Distribution and Growth

Integrated with:

SUBJECT Mathematics, Social Studies

TOPIC/UNIT Community Workers and Growth

BEHAVIORAL OBJECTIVES

Cognitive:

Define population density.

Identify areas on U.S. map where greatest density exists.

List three factors that regulate population growth.

Affective:

Selects the factors that would have the greatest effect on *population growth and* defends his choice.

Skills Used:

1. Math skills--add & subtract, involving borrowing.
2. Comparing
3. Analyzing
4. Map reading
5. Bar graph

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Read story "Farewell to Shade Glade" to group as a motivational offset; discuss population in your area and how it has increased. (using outside activities).
   B. Note on map where crowded congested cities are (blue). Now color equal area in red (showing *how much land area* will be needed when population in U.S. is doubled). Will be less area to produce food for people.
   C. Have city mayor or some city official give a talk on the city's history concerning such points as: population, land use, schools, parking lots, shopping centers, etc.

(Continued)

Outside or Community:

A. Find out through local Chamber of Commerce how many people live in your community. How many doctors, lawyers, teachers, builders, mechanics and other kinds of workers serve the community. If there is a shortage in your community, what are some of the reasons for it? Also, question parents and grandparents as to how many there were 50 *years ago*, 10 *years* ago and today. Make a bar graph to show increase. Publication on Sampling Button Populations is excellent for this. See back.

B. Find out from the local hospital or local newspaper how many babies are born in a week. At that rate, what would the population of your town be in one year? 10 years? 20 years? What other

(Continued)

SUGGESTED RESOURCES

Publications:

"Population Growth and America's Future", U.S. Government Printing Office
Little Boy Brown, Harris
The Big Island, May
Nobody's Cat, Miles
Farewell to Shady Glade, Peet
The Wump World, W. Peet
The Big Pile of Dirt, Eleanor Clymer
The Run, Jump & Bump Book, Brooks
Sampling Button Populations, ICE

Audio-Visual: RMC, 120 Nw

Films:
Population Patterns in the United States, BAVI
Population Problem U.S.A., Seeds of Change, BAVI
Cities of the Future, McGraw-Hill
People by the Billions, McGraw-Hill
Population Explosion, McGraw-Hill
Tomorrow's World, Feeding the Billions, McGraw-Hill
The City, EBF (Continued)

Community:

Talk by city official
Hospital
Newspaper

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)

Poster packs: (available from ICE RMC, 190 Ki)
The Population Explosion
The Effects of Overpopulation
Solving the Problem of Overpopulation
The House of Man, EBEC

CLASSROOM (Continued)

D. Have the school principal discuss the origin of the school as pertaining to population growth.

II. Math

A. Population sheet. Teacher handout sheet to students. Students compute the population gain for each state. A few problems could be done on board as examples. (attached sheet)

B. Other questions the teacher could have the students answer are as follows:

1. Which state had the most population in 1960? The least?
2. Most in 1975? Least in 1975?
3. Which state's population increased the most? The least?
4. Did any state's population drop? Which one?
5. How much population gain did we have in Wisconsin?
6. List in order from largest to smallest the ten states that had the biggest population increases.
7. Name some reasons why a state's population could have increased.

C. Children will work and play in a confined area of the classroom for one day to concretely experience overcrowding. Discussion of feelings and reactions will follow.

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	OUTSIDE ACTIVITIES (Continued) factors must be considered in predicting? Ex.-death. Among members of the class, what is the average family size? Compare with national average size of 4.3.
Audio–Visual:	
Community:	

POPULATION SHEET

State	1960 Population	1975 Population	Population Gain 1960-1975
Alabama	3,267,000	3,922,000	
Alaska	226,000	328,000	
Arizona	1,302,000	2,136,000	
Arkansas	1,786,000	2,184,000	
California	15,717,000	24,129,000	
Colorado	1,754,000	2,340,000	
Connecticut	2,535,000	3,397,000	
Delaware	446,000	617,000	
Florida	4,952,000	7,720,000	
Georgia	3,943,000	5,142,000	
Hawaii	633,000	812,000	
Idaho	667,000	760,000	
Illinois	10,081,000	11,840,000	
Indiana	4,662,000	5,417,000	
Iowa	2,758,000	2,807,000	
Kansas	2,179,000	2,397,000	
Kentucky	3,038,000	3,400,000	
Louisiana	3,257,000	4,162,000	
Maine	969,000	1,031,000	
Maryland	3,101,000	4,359,000	
Massachusetts	5,149,000	5,842,000	
Michigan	7,823,000	9,259,000	
Minnesota	3,414,000	3,905,000	
Mississippi	2,178,000	2,560,000	
Missouri	4,320,000	4,870,000	
Montana	675,000	764,000	
Nebraska	1,411,000	1,538,000	

(continued on next page)

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POPULATION SHEET (Continued)

State	1960 Population	1975 Population	Population Gain 1960-1975
Nevada	285,000	632,000	
New Hampshire	607,000	800,000	
New Jersey	6,067,000	8,156,000	
New Mexico	951,000	1,215,000	
New York	16,782,000	20,450,000	
North Carolina	4,556,000	5,596,000	
North Dakota	632,000	677,000	
Ohio	9,706,000	11,461,000	
Oklahoma	2,328,000	2,655,000	
Oregon	1,769,000	2,239,000	
Pennsylvania	11,319,000	12,141,000	
Rhode Island	859,000	959,000	
South Carolina	2,383,000	2,865,000	
South Dakota	681,000	702,000	
Tennessee	3,567,000	4,345,000	
Texas	9,580,000	12,482,000	
Utah	891,000	1,207,000	
Vermont	390,000	441,000	
Virginia	3,967,000	5,243,000	
Washington	2,853,000	3,304,000	
West Virginia	1,860,000	1,755,000	
Wisconsin	3,952,000	4,577,000	
Wyoming	330,000	354,000	

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Environmental:

CONCEPT NO. 7 - Land Use

ORIENTATION Transportation Systems

Integrated with:

SUBJECT Social Studies, Language Arts, Music, Math

TOPIC/UNIT Transportation (Roads)

BEHAVIORAL OBJECTIVES

Cognitive:

Demonstrate knowledge of the chronology of transportation modes by:

a. Listing ways of road transportation today.
b. Contrasting road transportation of long ago and today.
c. Listing into chronological order four songs of transportation given by the teacher.

Affective:

Demonstrate his awareness of the environmental problems caused by transportation by asking questions such as "What would be the effect on the environment if we didn't travel?"

Skills Used:

1. Interpreting
2. Illustrating
3. Comparing
4. Making a survey
5. Making a chart
6. Critical thinking
7. Singing skills
8. Research study
9. Reporting skills

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Teacher will use pictures of different types of roads for comparison.
   B. The students will compare farms, towns, cities of today to the farms, towns & cities of long ago, e.g. cobblestone streets vs. cement streets, dirt roads vs. asphalt roads.
   C. Discussion will follow telling why people move about now and how they moved about years ago. The students will pick out an area and make a picture, showing what it looked like years ago and how it has been changed to help us move from place to place, e.g. dirt roads vs. freeways. These pictures can be made into class mural.

(Continued)

Outside or Community:

A. After school each child will sit someplace near his home and count the number of different vehicles that pass.

B. The next day the class can make a chart and put the numbers they counted under the correct headings.

	Gravel Road	Highway	City Road
Cars			
Trucks			
Buses			
Etc.			

C. Use ICE field guide "Don't Use Traffic Jam on Peanut Butter Sandwiches" for math skills. Available at ICE office.

D. Bring pictures of transportation modes.

E. Put pictures in chronological order.

F. Railroad Museum trip (fare required) to see different changes in the railroads over the years.

SUGGESTED RESOURCES

Publications:

Songs from school-owned music series

D. W. Pepper Catalog, J. W. Pepper of Detroit, 373 Minnesota Street, Troy, MI 48084

Audio–Visual:

Slides of various modes of transportation - student-owned, possibly available in other departments, etc.

Pictures from various magazines

Automotive dealers, etc. dealing with different types of vehicles for transportation and trucking, etc.

Film: (from BAVI)
Transportation Around the World

Study Prints: (Eye Gate)
Land Transportation

Community:

Railroad museum

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

D. The teacher will give a hypothetical situation such as a man with a small farm on the edge of town cannot raise enough food to feed his cows and he cannot buy more land. What should he do and why?

E. Teacher asks: "If each child's father in the class drove a car to work, how many parking places would be used? If four fathers road in a car together, how many parking places would be used? Which way would be better and why? (e.g. takes less gas, makes less air pollution, takes less parking space).

II. Language Arts

A. Children will make a class list of ways of road transportation which are used today. (cars, bicycles, trucks, etc.)

III. Music

A. Students make a list of songs they know dealing with modes of transportation, e.g.
  1. Row, Row, Row Your Boat
  2. Marching Song
  3. Little Red Caboose
  4. Down By The Station
  5. My Pony
  6. Space Travel
  7. Canoe Song

B. Students will arrange these modes in chronological order.

C. Teacher will guide a discussion regarding the impact on the environment of progress in the various modes of transportation as emphasized in ballads, folk tunes, etc.
  1. Early musical instruments were quite primitive. Could the same be said of transportation?
  2. What effect did early primitive modes of travel have on the environment?

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

3. What brought about the change of travel?
   a. Desire to explore new lands.
   b. Desire to move supplies further, faster.
   c. Inventions that brought about machines and vehicles to propel man faster and further.
4. As machines were developed did fuels need to be developed and as they were developed and used what effect did this have on our environment?
5. What effect on the economy resulted from the development of transportation?

D. Sing the listed songs in the proper order as established by the students and instructor.

Environmental:

CONCEPT NO. 7 - Land Use

ORIENTATION Population

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Hobby - Leisure Time

BEHAVIORAL OBJECTIVES

Cognitive:

Define in his own words what leisure time is.

List five ways in which they use their leisure time.

Affective:

Volunteer to demonstrate their hobbies to the class, as examples of leisure time.

Skills Used:

1. Gathering information.
2. Interviewing.
3. Charting.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss leisure time. Ask the children how their parents use a 24-hour day. Ex.-Father sleeps eight hours, works eight hours, travels one hour to and from work, eats 1½ hours, five hours of leisure time (used constructively and derives personal satisfaction). Given a 24-hour day, children will estimate and record how their parents use a normal day.

B. List the different kinds of hobbies among children and adults. Discuss how the importance of an adult having a hobby is in filling approximately 40 hours of free or leisure time each week. Have a hobby show for children and adults. (If they wish.)

1. What do you do in your free time?

(Continued)

Outside or Community:

A. Bring in recreation leader or park director to discuss the use of our parks and recreation sites.

B. Bring in senior citizens or go to them if necessary to discuss their hobbies and use of leisure time.

C. Invite parents to the classroom to demonstrate or discuss their hobbies.

SUGGESTED RESOURCES

Publications:

President's Council on Recreation and Natural Beauty, From Sea to Shining Sea; A Report on the American Environment - Our Natural Heritage, Washington, D.C., 1968, ICE RMC, 100 Pr

Childcraft, encyclopedia, "Make and Do Section on Hobbies".

Audio–Visual:

Film:
Nature Is For People, BAVI

Community:

Recreation leaders

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. What do your parents do in their free time?
3. What are some possible hobbies people can choose to do?
4. Do hobbies have to involve a lot of money?
5. Why are hobbies needed?

C. Hobby club could be started.

D. Discuss (in terms of population growth) the need for recreation as our population increases.

1. What was the population of our community 50 years ago? What is it now?
2. Has this growth affected our parks any? How many parks did we have long ago (50 years)? How many now?
3. If our community continued to grow, what changes will be necessary?
4. Ask your parents and grandparents what they did for fun? Is this the same as you do now?
5. Will you have more or less leisure time in the future? Why? What will you do? How will you use our natural resources so as not to waste?

Environmental:

CONCEPT NO. 7 - Land Use

ORIENTATION Land Use

Integrated with:

SUBJECT Art

TOPIC/UNIT Sculpture - City Planning

BEHAVIORAL OBJECTIVES

Cognitive:

Construct alternative solutions, individually and in groups, to given cause and effect problems of a city such as:
a. Population change
b. Highway change of route

Affective:

Demonstrate his alertness to effects of various changes in the neighborhood by bringing examples to class.

Voluntarily informs class members of the possible effects changes in the community may have.

Skills Used:

1. Construction of various elements within city.
2. Architectural awareness.
3. Observation.
4. Problem solving.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. The class can create a miniature model neighborhood on a table top or in a sandbox using a variety of media; clay animals, toy cars, boats, box houses, pipe cleaner fences.

B. A "what if" possibility is given and the students are required to make the necessary changes in their model neighborhood. Example:
   1. What if a proposed highway is planned to go right through the neighborhood?
   2. What if there was a sudden influx of people into the area?

Outside or Community:

A. Field trip to see what things can be included in a model neighborhood. Perhaps continued trips to aid "what if" solution.

B. Have the city planner or an architect come to talk to the students on the problem of land use.

SUGGESTED RESOURCES

CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

"A Study in Environment," Leano Nalle, School Arts, April '72, building mini-landscapes.

"Cardboard City," Mixed Media, R. R. Guthrie, School Arts, 68:32-B S '68

Our Man-Made Environment, Book 7, ICE RMC, 120 O

If I Built A Village, Kazue Mizumura, Crowell, a young boy creates a village in which natural beauty and resources are used as a means of design.

Audio–Visual:

Film:
Creating With Clay, BAVI

Kit:
Man in His Environment, Coca-Cola Game, ICE RMC, SG 4

Community:

Environmental:

CONCEPT NO. 8 - Values and Attitudes

ORIENTATION Noise Pollution

Integrated with:

SUBJECT Science

TOPIC/UNIT Sound

BEHAVIORAL OBJECTIVES

Cognitive:

List five sounds that are disturbing and five sounds that are pleasing.

Write a short paragraph telling how we can reduce the effect of sounds which are disturbing.

Affective:

Listen for unnecessary noise on his own and tell what he has done at home or at school to reduce this.

Skills Used:

1. Observation
2. Research
3. Experiment
4. Compare
5. Listening

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Experiments in how sound travels:
   1. Tuning fork
   2. Rubber bands on a box drum
   3. Drum
   4. Pebble thrown in water
   5. Homemade phone
   6. String and a glass
   7. Doorbell

B. Discuss how men and animals use sound. List similarities.
   1. Sound received by vibrations through a membrane.
   2. Sound is protective warning.
   3. We often have too much sound.

C. Discuss sounds.
   1. What sounds do you hear every day?
   2. Which sounds do you like?
   3. Which sounds don't you like?
   4. Which sounds are bad for us? Why?
   5. How can we help to stop noise pollution?

Outside or Community:

A. With a tape recorder, children can record and analyze the sounds in the community. List the sounds according to categories: natural, animal-made or man-made, loud or soft, necessary or unnecessary, and so on. How do the sounds affect animals and humans? Can anything be done to reduce sounds that are disturbing? Have the children each list sounds they consider to be noises. Do their lists match? What is the advantage of using the tape recorder? Do we hear all the different sounds around us?

B. If possible, tape the sound of an auto, twin-engine plane and jet plane. Then talk about the physical effects of each on the environment, effects on man, animals, plants.

SUGGESTED RESOURCES

Publications:

The Listening Walk, Paul Showers, Crowell, clicking dog nails and squeaky baby wheels are just some of the sounds neatly described to promote student listening and an actual "quiet" listening walk around, nearby or inside the school. Also asks what sounds are pleasant? unpleasant?

Jr. Science Book of Sound, Anderson, Garrard Press, 1962.

Sound, Neal Follett, 1962

Audio–Visual: (Continued)

Films:
Sound, Films, Inc.
Sound and How It Travels, EBF
Sound for Beginners, Coronet
Sound About, BAVI

Kit:
Our Environment 2 - Sound & Noise, EMC Corporation, ICE RMC, KT 30

Community:

Airport
City streets

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

The Magic of Sound, Kettelkamp, William Morrow & Co., 1956

Sounds Are All Around, Pine & Levine, Whittlesey House, 1958

Brown County Library:
The Loudest Noise in the World
Noisy Nancy Norris
The Little Woman Wanted Noise
The Noisy Book
Too Much Noise
The Caboose Who Got Loose, Peet

Environmental:

CONCEPT NO. 8 - Values and Attitudes

ORIENTATION Land Use

Integrated with:

SUBJECT Art, Reading

TOPIC/UNIT Environmental Sculpture

BEHAVIORAL OBJECTIVES

Cognitive:

Select examples of what factors contribute to an attractive or an unattractive environment and incorporate them into an art display or project.

Affective:

Willingly share with the class a description of the most beautiful thing he has seen in the last week.

Express sadness or joy when viewing either a destructive or constructive thing of beauty.

Skills Used:

1. Basic sculpture techniques.
2. Observation.
3. Environmental awareness.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art

A. Go outside and collect materials you find in your environment such as wood scraps, cans, objects from a junk yard, rocks, leaves, etc. Create a sculpture from them. (Refer to Warren Scholat, Understanding Sculpture I and II or, if not available, resources on back). Have each piece of sculpture show one of the following. (Student choice). Each child will write out a title for his piece of art work.

1. How ugly your environment is.
2. How beautiful your environment is.
3. How it makes you feel.
4. The joy or sadness of it.

(Continued)

Outside or Community:

A. The student materials may be obtained at the following: (these are suggestions only).

1. Beach
2. Woods
3. Junk yard
4. Junk from home
5. Saw mill or lumber yard
6. Anywhere the student may find them

SUGGESTED RESOURCES

Publications:

"Creative Uses of Scrap Materials", R. G. Lewie, School Arts, 69:11 F '70

"Children's Sculpture", J. W. Burgner, School Arts, 71:42-4 O '71

Audio–Visual:

Film:
Introduction to Sculpture Methods, BAVI

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

5. How time changes your environment.

II. Reading

A. Read Alvin Tresselt's book, The Dead Tree, (Parent's Magazine Press), which tells simply and beautifully how a tree recycles itself in nature. Compare and discuss the need for recycling in man's community. (See discussion questions that follow for suggestions).

B. Questions for discussion:

1. What is this a story about?
2. How did you feel about what was happening to the oak tree?
3. What helped weaken and destroy the great oak tree?
    - carpenter ants
    - termites
    - fungus
    - centipedes
    - skunks
    - storms
    - woodpeckers
    - snails
    - slugs
4. How did the great oak tree return to the earth?
5. What happens to things when they decay?
6. What would happen if the oak tree wouldn't have decayed? (If it weren't for decay, bacteria, etc., dead animals and plants would cover the earth.)

C. Have children make a list of the animals who made their home in the oak at one time or another.

- squirrels
- carpenter ants
- termites
- woodpeckers & other birds
- snails
- grubs
- deer mice
- rabbit
- chipmunks
- centipedes
- slugs
- beetles

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

D. Make a list--the oak tree provided for:
    squirrels--acorns
    woodpeckers--grubs and beetles
    termites
    slugs
    carpenter ants   rotting wood
    centipedes
    snails

E. These are found under the bark in the winter:
    fungus
    ants
    termites

F. Make an illustration of the great oak in the process of decaying. Include many of the plants and animals it sheltered and fed.

Environmental:

CONCEPT NO. 8 - Values and Attitudes

ORIENTATION Cultural Community

Integrated with:

SUBJECT Social Studies, Music, Language Arts

TOPIC/UNIT Africa

BEHAVIORAL OBJECTIVES

Cognitive:

Classify pictures into two groups, (1) That group of needs and (2) That group of luxuries for a family in our country.

Compare the life of a person in our country with that of one in Africa including at least 5 ways in which they are similar and 5 ways in which they are different.

Affective:

Find reasons and examples that support the idea that resources should be used more wisely.

Skills Used:

1. Use map symbols.
2. Locate land masses and bodies of water on globe.
3. Classifying, comparing.
4. Critical thinking.
5. Use of library references.
6. Experimenting.
7. Collecting, discussing.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
  - A. Children bring to class a picture of their family, catalogs and magazines.
  - B. The children will cut out pictures showing what the family needs and what the family wants.
  - C. A discussion will follow on what happens to our natural resources & pollution of our country when everyone has what he wants and what he needs.
  - D. Have a list of resources and tell children what resource was used for articles from (B). Library references may have to be used.
  - E. Write to letter for pen pal correspondence with Ghanian children at: Mission

(Continued)

Outside or Community:

A. Invite exchange student, teacher or traveler to speak to class about Africa's hot equatorial communities, ex.-
  1. The country
  2. Customs
  3. Major occupations

B. Square dance demonstration or any dance common to the cultural influence of areas.

C. Visit Milwaukee Museum or other reliable source to observe African artifacts.

D. Peace Corps workers from Africa may send information to students and discuss life of Africans.

SUGGESTED RESOURCES

Publications:

Kevakee, A Boy of Ghana, Wariuw Schloat
Science Everywhere, Ginn
Where In The World Do You Live?, Al Hine
First Book of Maps & Globes, Sam Epstein and Walt Franklin
Good Times With Maps
Everybody's Weather, Joe Gaer
You & Regions Near & Far, Clarence Samford
Playtime in Africa, Ranger Rick, Feb. 10, p. 16

(Continued)

Audio-Visual:

Filmstrips:
Ghana, Land & People, Eye Gate
Babies of Africa, Eye Gate
Faces of African Children, Eye Gate
The African Village-Near The Equator, Curriculum Filmstrips
Children of Rural Africa, Eye Gate
Moslem Children in Africa, Eye Gate
Children of Non-African Origin, Eye Gate

(Continued)

Community:

Museum

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

Growth Through Play, Albert Farina, Sol Furth, Joseph Smith, Harris, Retiman and Waller
Dance A While, Burgess Publishing Co., 1965

AUDIO-VISUAL (Continued)

Filmstrips:
African Farm Children, Eye Gate
Children of the African Desert, Eye Gate
African Children At School, Eye Gate
Transparency:
Major Land Forms in the U. S., Chicago, Nystrom & Co.

CLASSROOM (Continued)

School, Kenneth Updyke, P. O. Box 6, Tuma, Upper Region Ghana, West Africa.

F. Make individual dictionaries in which new terms from this unit may be listed.

II. Music
   A. Discussion of how people all over the world live (cultural influence).
      1. Do all of us live and eat the same things and in the same way?
      2. Do the people in Alaska live differently than people in Florida?
      3. What does culture mean?
      4. Do we have a culture in this community?
      5. Is our culture a combination of many cultures?
      6. Does our culture influence the way we dance? Bring out the fact that different people dance in a different way--we benefit from them by sharing them today.
      7. Sing songs of Africa: Play recordings of music from Ghana.

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Audio–Visual: Community:	CLASSROOM (Continued) III. Social Studies A. Make a list of means by which we might travel to the communities of Africa and white phrases which would describe the relative location of a particular equatorial community (Ghana). B. Make designs similar to those used on jewelry, leather work or weaving from an equatorial community. C. Prepare food the families of an equatorial district may eat. (tuna, tapioca, cocoa)

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 9 - Management

ORIENTATION Litter

Integrated with:

SUBJECT Mathematics (Fractions)

TOPIC/UNIT Earth Week (Litter)

BEHAVIORAL OBJECTIVES

Cognitive:

Define litter.

Compare the amount of litter in different classrooms by estimating the volume in each classroom.

Describe the difference between litter and littering.

Affective:

The student will tell what he has done in the last week to reduce litter at school or at home and why he will continue to do this.

Skills Used:

1. Counting.
2. Tabulation with fractions.
3. Compiling data.
4. Observation & comparison.
5. Charting.
6. Speech - reporting.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. The students will tabulate by rooms the volume of litter in wastebaskets. Then they will indicate the amount of litter for each grade.

B. Work out these problems:
   1. Most Americans throw away about 5 pounds of trash a day. How many pounds is this in 5 days? In seven days?
   2. How many pounds of trash does a family of 6 throw away a day?
   3. Most Americans use about 4 cans a week. How many cans is this in 4 weeks? In 8 weeks?
   4. How many cans does a family of 6 use in a week?
   5. Most Americans use about 3 bottles a week. How many bottles is this in 4 weeks? In 8 weeks?

(Continued)

Outside or Community:

A. The students will take a litter count in their own yard and report to the teacher on their findings.

B. Visit the school incinerator.

C. Have a school custodian describe work and problems caused by litter.

D. Collect litter from your playground. Present facts about their findings to the rest of the school in an assembly so they become aware of the litter problem.

E. Have the city's Director of Public Works give a talk on the problems caused by litter in the city.

F. Also, the teacher might have the school's principal stop in and give a quick "anti-litter" plug.

SUGGESTED RESOURCES

Publications:

Man's Control of the Environment-to determine his survival...or to lay waste his planet, Congressional Quarterly, 1970, ICE RMC, 100 Ma

Litter Prevention, Keep America Beautiful, Inc., guide of suggested litter prevention activities for use in elementary schools, ICE RMC, VF

Audio-Visual:

Films:

Biology: Population Ecology, EBF

Land Betrayed, BAVI

Game:

Recycling Resources, ICE RMC, SG 6

Community:

Director of Public Works
Dept. of Natural Resources

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

6. One 1965 car pollutes the air as much as five 1970 cars. How many 1965 cars pollute the air as much as 45 1970 cars?
7. In 1970 a family of 6 persons threw away about 40 bottles and cans a week. Keep track of the number of bottles and cans your family throws away in one week.

C. Have each child take home a survey sheet that inquires how many cans are used during a given three-day period. Parents and class members will work together recording daily use of cans and preparing them to be returned to school. Prior to this, the class is divided into two groups which are determined by the number of members in each family. To insure equal consumption, both groups will have approximately the same total number of family members. One group will return cans flattened and the other group will return cans in their regular form. See attached worksheet. After the worksheet is completed, students will:

1. Discuss need for turning in cans for recycling.
2. Compare space of flattened cans to unflattened ones.

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WORKSHEET

Attention, family members: Please record (tally below, the number of cans you've used for the three-day period, starting tomorrow.)

Day One

Day Two

Day Three

Please help us in our investigation. Carefully clean all cans and return them to school with your child daily. Your child is in the following group to:

( ) return cans flattened

( ) return cans in their regular shape

Names of the members in your family: ____________________

Environmental:

CONCEPT NO. 9 - Management

ORIENTATION Urban Environment

Integrated with:

SUBJECT Art, Reading

TOPIC/UNIT Construction

BEHAVIORAL OBJECTIVES

Cognitive:
Describe the characteristics of the structure of the city.

Affective:
The student becomes conscious of the complexity of the problems facing cities by making statements such as, "It's not that easy" when a student comes up with a simple solution to a city problem.

Skills Used:
1. Construction
2. Cutting
3. Pasting
4. Layout

STUDENT–CENTERED LEARNING ACTIVITIES

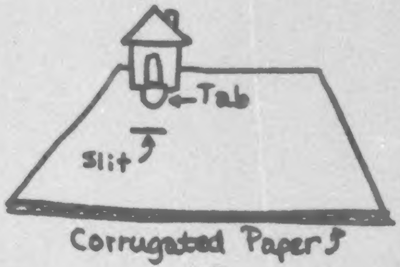
In-Class:

I. Art
  A. Make a city (group project).
    1. Cut out pictures of people, buildings, trees, cars, anything that's found in your city.
    2. Paste a piece of cardboard on the back. Leave tab on bottom.
    3. Draw blocks and streets, manhole covers on a big piece of cardboard or the bottom of a large box.
    4. Assemble your pictures and place them in the city in their appropriate places. Push tab thru slit so buildings, etc. stand up, larger buildings toward back--create depth.

(Continued)

Outside or Community:

A. Collect magazines, newspapers.
B. Have the students take note of the streets and area around them on their way to and from school.



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SUGGESTED RESOURCES

Publications:

Community Planning Handbook, Ginn & Co., 1970, ICE RMC, 110 Gi

A Place To Live, National Audubon Society, ICE RMC, 110 A

Everything Changes, Howell

City Lots, Living Things In Vacant Spots, Busch

Audio—Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

5. After the model is constructed, teacher presents various questions which might prompt a reconstruction of the model. Sample questions:
   a. What would happen if we doubled the population of the city? How do we provide for public services because of this increase? Students will offer suggestions as to how the city will meet doubled demands on:
      1) Water supply,
      2) Traffic and public transport,
      3) Housing,
      4) Recreation,
      5) Food supply,
      6) Hospital, police and fire protection, and
      7) Waste disposal.

B. Read Wilson's World by Edith and Clement Hurd (Harper and Row). A boy at his easel creates with paint--his own city. The excellent illustrations and story help students to think about the world they would like to create and live on.
   1. Compare Wilson's World at the beginning of the story with his world at the end of the story.
   2. Name some things that drastically changed Wilson's World.
   3. What advice would you have given Wilson as he was creating his world?

C. Teacher can tape-record Wilson's World and make both the tape and book available to students during their free time.

Environmental:

CONCEPT NO. 9 - Management

ORIENTATION Man vs. Environment

Integrated with:

SUBJECT Physical Education, Art, Music

TOPIC/UNIT More Earth Week - Litter
Low Organization Games

BEHAVIORAL OBJECTIVES

Cognitive:

Define change in environment.

Describe how the process of change occurs.

Describe the possible change in environment that will occur as a result of a given factor or incident.

Affective:

Will make and use a litter bag.

Aware of how they can change their home environment by reporting on recent changes at home. (Examples: Redecorating their own room, helping dad plant a garden or tree planting, etc.

Skills Used:

1. Running.
2. Throwing.
3. Rhythmic skill.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

I. Physical Education
  A. Pick the Pumpkin Patch Game. (See next page for directions.)
  B. Mulberry Bush record.
  C. To the words of Mulberry Bush, the classroom teacher may put into the song words to fit the classroom environment instead of home environment.
  D. Discussion: Student-centered, teacher-directed.
    1. Did you change the the pumpkin patch? Yes.
    2. How did you change the things you did in the record? Clothes washed, ironed, baked bread, mended clothes, swept floors, etc.

(Continued)

Outside or Community:

A. Possible correlation with classroom teacher's social studies unit. Ex.-students' relationship to room, home, neighborhood and city environment.

SUGGESTED RESOURCES

Publications:

Litter Prevention, Keep America Beautiful, Inc., guide of suggested litter prevention activities for use in elementary schools, ICE RMC, VF

The Mountain, Parvel

Audio-Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

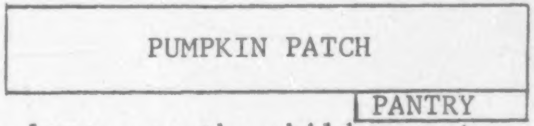
3. How does your mother and father change the land around your home?
4. What ways does man change our city?

II. Art
   A. Children shall construct litter bags.

PICK THE PUMPKIN PATCH

Equipment: Four 7" playballs or rhythm balls.

Designate the playing space. Four children are selected to be the Pumpkin Pickers. They put on a red pinnie, take a ball and go stand in the center of the playing area. The other children are pumpkins and scatter about the space. On the signal "Pick the Pumpkin Patch", the pickers chase after the pumpkins, throwing their balls at them in an attempt to eliminate them from the game by hitting them below the head. The pumpkins may dodge anywhere within the designated boundaries. If they are hit, they go sit down in the pantry (where they will be made into pie). They are eliminated from the game. After a designated time, 3-4 minutes, the Pickers count the number of pumpkins they have picked (hit). They choose a pumpkin still in the patch to take their place. Those pumpkins who were eliminated may now re-enter the game. See which group of pickers can pick the most pumpkins.



SUGGESTIONS:

1. Make the pumpkin patch very large, so the children get a good run. This is a good game for a cooler day out-of-doors as most of the children are active for the greater share of the playing period.
2. When choosing children to be the first pickers, try to select those who are not chosen often by the other children. You might want the girls to choose girls to take their place and boys to choose boys. In this way, the throwers will be divided between boys and girls.

Environmental:

Integrated with:

CONCEPT NO. 10 - Economic Planning

SUBJECT Social Studies, Art

ORIENTATION Transportation

TOPIC/UNIT Transportation

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the effects the development of roads has had on our environment by means of prepared charts, stories, pictures and/or a report.

Affective:

The child will suggest ways of reducing automobile usage (Examples: car pools, bikes, walking, etc.)to parents and neighbors.

Skills Used:

1. Reading time line.
2. Communication.
3. References.
4. Observing.
5. Participation.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art
  A. Construct a time line.
    1. 1492-1640 Footpaths & Packhorses Era
    2. 1640-1860 Coach & Wagon Era
    3. 1860-1900 Horse & Buggy Era
    4. 1900-1940 Combustion Engine Era

II. Social Studies
  A. Discuss: How many different ways a person can earn a living connected with automobiles.
  B. How many different things do we hear or use everyday that are carried at least part way by truck?
  C. How many different kinds of trucks are built to do special jobs? Be sure to include: Mobile X-ray units, Bloodmobiles,

(Continued)

Outside or Community:

A. Have a speaker from Department of Natural Resources come to class and talk about car pools and use of bicycles.

B. Visit the National Railroad Museum to study trains through the ages. Child will write on the ecological disadvantages (i.e. noise, air, land pollution) of the aspects of train transportation as well as the many advantages to our society and economy that train transportation has given. (Child could expand this to air and car transportation as well.

C. Have Highway Commissioner for your area come in to discuss the uses of roads in the country and city and their neighborhood.

D. Class visit to a bloodmobile.

SUGGESTED RESOURCES

Publications:

ABC's of Cars and Trucks, Alexander
Who Built the Highway, Bates
I Want to be a Road Builder, Greene

Audio–Visual:

Films:
Beaver Valley
Transportation Around the World, BAVI
Filmstrips:(Current Affairs Films)
Planning Our Cities
City & Suburb
Obtain charts and booklets and films from The American Trucking Association, The Ford Co., or General Motors.

Community:

Dept. of Natural Resources
Highway Commissioner
National Railroad Museum - Green Bay

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

Traveling Museums and Bookmobiles.

D. What are the aggravated problems which face us with their use?

Environmental:

Integrated with:

CONCEPT NO. 10 - Economic Planning

SUBJECT Language Arts

ORIENTATION Conservation of Resources

TOPIC/UNIT Dramatization & Discussion - Hunting

BEHAVIORAL OBJECTIVES

Cognitive:

Evaluate the practice of sport killing in terms of environmental losses and hunter enjoyment and determine whether it is good or bad and provide reasons.

Affective:

By volunteering observations in a class discussion, the student accepts the idea that man can be an aid and not a hindrance toward the preservation of wildlife.

Given a poem about sport killing, the student will read it, panel discuss its environmental losses and dramatize situations dealing with same.

Skills Used:

1. Dramatizing.
2. Critical judgment.
3. Verbal empathy.
4. Creative writing.
5. Oral skills

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Read the poem, Hunting Song, by Donald Finkel to class.

B. Students decide what is meant in each stanza and how the character of each stanza feels.

C. Discussion of why the hunter wanted to kill the fox.

D. Discuss whether this is a good or poor idea, including what could happen if too many fox are killed.

E. The children will form into small groups and give an extemporaneous dramatization in which the characters are animals and hunters.

F. Children will give their viewpoints on hunter's justification of killing fox. (Possible panel discussion on same).

G. Children can carry through above ideas into other hunting areas (i.e. rabbits, geese bear).

(Continued)

Outside or Community:

A. Game warden could be invited in to discuss hunting regulations and the need for them.

B. Take early morning bird hike to somewhere and have a sack breakfast afterwards.

C. Make bird feeders and bird bath, bird houses to protect them during the winter. (with Dad's help)

SUGGESTED RESOURCES

Publications:

Poem, "Hunting Song", Donald Finkel, from "New Poets of England & America", 1957 - Re 1972 edited by Donald Hall

The Hunter I Might Have Been, Mendoza

The Last Free Bird, Stone

Hoagie's Rifle Gun, Miles

Happy Hunter, Duvoisin

The Hunting Trip, Burch

Audio–Visual:

Filmstrip:
We Protect Animals, Eye Gate

Community:

Game warden

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

H. Each child will write a story as if he were the hunted animal explaining how he would feel and what he would do while being chased by the hunter.

I. Discuss what and why certain animals are considered pests. What pests are in your area? Discuss method of reducing or controlling. What good animals use pests as food? Discuss cases where an animal is considered a pest by some and not by others. Child can make mobile or collage on pests and desired animals.

J. Make chart or bulletin board to help wildlife:
   1. Protect wildlife homes - plant trees and shrubs for food and shelter.
   2. Avoid killing or annoying small living things.
   3. Keep wild pets rarely, after few days of proper care, return to where they were found.
   4. Some insects are helpful and should not be destroyed. (bees, dragonflies, ladybugs, etc.)

K. Finally, discuss necessities of some animals being killed or eliminated. What are sportsmen's fees used for? (This discussion could be a contrast to above activities.)

Environmental:

Integrated with:

CONCEPT NO. 10 - Economic Planning

SUBJECT Area Science

ORIENTATION Soil Management

TOPIC/UNIT Conservation - Erosion

BEHAVIORAL OBJECTIVES

Cognitive:

Make a collage of wildlife pictures depending on soil.

Give an example of soil erosion that he has seen recently and offer a solution to the problem.

Affective:

List ways in which soil erodes.

Write his views on value of soil conservation on paper.

Skills Used:

1. Experimenting
2. Classifying
3. Observing
4. Making inferences
5. Listing
6. Discussion

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Drip water over two soil samples, one planted, but not the second. Observe erosion. Repeat this several times.

B. Make soil with crushed rock, dead insects, leaves, peelings. Plant seeds.

C. List all things in the kitchen that come directly or indirectly from soil.

D. Take two soil samples, one topsoil and one subsoil. Grow a plant in each and compare their growth.

E. For bulletin board or collage, cut out magazine pictures of wildlife that depend on soil conservation. This would include a lot. It could turn into a paper collage, individual posters or class may decide to classify into groups.

(Continued)

Outside or Community:

A. Collect soil samples and label as to coarse, fine; sand, clay, loam, peat, by color, smell. Keep samples for future use.

B. Collect soil samples from different depths: 5", 12", 20" and observe any differences.

C. Collect two bottles of stream water, one before a storm and one after. Allow to settle and compare.

D. Observe the soil around a newly-dug basement or construction. Look for signs of erosion, especially by sewer or curb. Look for soil in other places: sidewalk cracks, under fences, on blacktop. How did it get there?

E. Take pictures along a highway where newly constructed or where the road cuts through a hill. Discuss erosion possibilities and methods of control.

(Continued)

SUGGESTED RESOURCES

Publications:

People Use The Earth, V.
Phillips Weaver, Silver Burdett
The Good Rain, Goudy
The Big Pile of Dirt, Eleanor
Clymer
A Small Lot, Keith
Farewell to Shady Glade, Peet
The Wump World, Peet
Science Is Exploring, Scott-
Foresman, Gr. 3, 1965, p. 102-4
A Place to Live, National
Audubon Society, ICE RMC, 110 A
The Dirt Book, Eva Knox Evans,
Am. Forestry Magazine

Audio—Visual:

Films:
Adventures of Junior Raindrop,
U.S. Dept. of Agriculture
Conserving Our Soil Today,
Coronet
Man Uses & Changes the Land,
Coronet
Your Friend, The Water - Clean
or Dirty, EBF
The Soil of Life, BAVI
Record:
"The Conservation Song", Science
Singing Record Sampler
(Continued)

Community:

Soil and Water Conservation District, local offices in the Federal Bldg. of your county seat

Have local district forester talk to youngsters about planting, etc.

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)

Free movie from Weyerhauser Library Co. on tree farming methods

Filmstrip: Conserving Our Natural Resources, ICE RMC, FS St22

CLASSROOM (Continued)

F. Research for an able student--define a watershed and draw a picture of one.

G. Mini-demonstration of erosion by wind. Take a large container filled with sand. To demonstrate what effect the wind has on soil erosion, place an electric fan next to this container and turn it on. Discuss how the topsoil is blown away from this area.

H. Classroom discussion.
  1. How soil may be wasted.
     a. Topsoil may blow away.
     b. Floods and rains carry away soil.
     c. Where trees are cut (and not replanted), soil may become eroded.
  2. How soil may be saved.
     a. Terracing.
     b. Contour plowing.
     c. Strip cropping.
     d. Replanting of trees.
     e. Dams
  3. Students will write their views on soil conservation choosing topics like: ways of saving soil or ways of wasting soil.

OUTSIDE ACTIVITIES (Continued)

F. Take pictures of farmland showing contour plowing and strip cropping. Discuss their merits.

G. Plant a tree for Arbor Day in a place where erosion can be prevented.

H. Poke a stick into different soils. Observe if compact (which allows little water to soak in) and loose soils (allows more water) and observe what is growing in each.

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Audio–Visual: Community:	OUTSIDE ACTIVITIES (Continued) I. Observe how quickly water soaks into plant-covered soil and bare soil. J. George Howlett, ICE office, will come to the school with a soil borer to take a soil sample and show the youngsters the levels of soil.

Environmental:

CONCEPT NO. 10 - Economic Planning

ORIENTATION Poor Posture

Integrated with:

SUBJECT Physical Education, Art

TOPIC/UNIT Posture - Safety (Art)

BEHAVIORAL OBJECTIVES

Cognitive:

Differentiate between the terms, short-term gains and long-term gains.

Affective:

Show an awareness of consequences resulting from poor posture habits through a discussion.

Skills Used:

1. Posture correctness.
2. Stooping and bending.
3. Body balance.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Physical Education
  A. Motivation
    1. Offer a child a bag of candy.
    2. Class discussion of short-term vs. long-term gains.
      a. What if a child eats the whole bag in one sitting?
      b. What alternatives are there besides eating the whole bag at once?
  B. Posture pictures should be posted. Give demonstrations of short-term gains resulting in poor posture. Ex.-lifting, bending vs. stooping, carrying groceries, one large sack vs. two small sacks, sitting at desk, slouched vs. good posture.
  C. Tie in environmental loss resulting from short-term gains.

(Continued)

Outside or Community:

I. Art
  A. Project illustrating some idea concerning an environmental loss resulting from short-term gains. Ideas include campfire safety vs. carelessness, economic gains vs. pollution of air and water, crop rotation vs. soil loss, forest management vs. clear cutting.

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Postural Improvement Activities for All Ages, Vocational Activities, Inc., Freeport, New York

Good and poor posture pictures from magazines.

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

1. Camp fires and cigarettes. (forest fires)
2. Economic gains of industry. (pollution of air and water)
3. Lack of crop rotation. (depleted soil)
4. Economic gains in wood industry. (disappearing forests)

D. Exercises

1. Sitting back to back with a partner, by pushing against each other, stand up. (called Chinese getup)
2. Standing against the wall with heels, buttocks, shoulders and head; only the fingers of the hand should fit between the lower back and wall.
3. Shoulders should be back and down with the stomach pulled in with the limitations discussed in No. 2.

Environmental:

Integrated with:

CONCEPT NO. 11 - Individual Acts

SUBJECT Science

ORIENTATION Fire Prevention

TOPIC/UNIT Resource Conservation

BEHAVIORAL OBJECTIVES

Cognitive:

Describe examples of what other people have done to illustrate short term vs. long term actions for resource conservation.

Affective:

Willingly discuss various acts of people that may affect the environment. (i.e. disposing of wastes, setting of fires, traffic jams)

Skills Used:

1. Collecting pictures.
2. Making inferences.
3. Comparing & contrasting.
4. Drawing conclusions.
5. Planning a trip.
6. Survey
7. Discussion
8. Observing
9. Listing

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. List ways people set fires: cigarettes, matches, campfires, arson, trash piles, burning leaves, etc.
   1. Make up an ABC forest fire prevention game. For example:
      A is Always be careful with fire.
      B is Burn trash only on calm days.
      C is Campfires should always be put dead out.

B. Discuss times when children have gone places with their parents and have gotten caught in a traffic jam. If a bus holds 40 people, how many cars could have been replaced by one bus?

C. The children will draw pictures of four things people do which change their environment. Ex.-littering, starting a fire, driving cars, unnecessarily destroying wildlife without cause.

(Continued)

Outside or Community:

A. Take a survey of all the fathers, mothers or relatives who hunt, ex.-ducks or deer. Discuss the "sport" of such an act. Then read The Happy Hunter by Duvoisin and try to instill the idea of watching and not shooting animals. Play With Me by Ets also helps the child understand that some wild creatures come near when we are quiet.

B. Collect pictures of lakes. Write captions as to how area is used, ex.-amusement parks, cottage sites, areas preserved as a park.

C. Invite a forest ranger in to discuss the use of fire and its misuse in our forests.

SUGGESTED RESOURCES

Publications:

The Happy Hunter, Duvoisin
Rrra-ah, Keith
The Wump World, Peet
Farewell to Shady Glade, Peet
The Last Free Bird, Stone
Trail of Apple Blossoms, Irene Hunt
Action at Paradise Marsh, Ester Wier
Ash Road, Ivan Southall
Play With Me, Ets
Sing With Smokey, Jean Hoem, ICE RMC, 170 Ho

Audio–Visual: (Continued)

Films:
Conservation for Beginners, Coronet
The Litterbug, Walt Disney
The Litterbug, Avis
The Treehouse, King Produc.
Cry of the Marsh, ACI Films, ICE RMC, Film #390
Filmstrip:
Ecological Imbalance: Six Systems Dispoiled, Eye Gate, ICE RMC, FS St2

Community:

Parents
Forest ranger
Game warden

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

Teacher's Forest Fire Prevention & Conservation Kit, Grades 1-4, U. S. Dept. of Agriculture, Forest Service, ICE RMC, 170 Fo

CLASSROOM (Continued)

D. After the learning experiences, the child will plan an imaginary trip to a public park and criticize orally (panel possibly) the rules and defend their individual behavior.

Environmental:

CONCEPT NO. 11 - Individual Acts

ORIENTATION Soil Management

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Language (Earth) - Land Use

BEHAVIORAL OBJECTIVES

Cognitive:

Describe the types of changes that can come about by the addition of each of the following:

a. water	c. plants
b. fertilizer	d. heat

Describe the characteristics of soil that can be determined by each of the following:

a. touch	c. smell
b. taste	d. sight

Affective:

Children will appreciate the use of their 5 senses in describing other environmental changes they might meet.

Using puppets, students in teams create spontaneously 5-minute skits dramatizing how the senses can help us to manage the land.

Skills Used:

1. Making comparisons.
2. Observation using senses.
3. Listing.
4. Making inferences.
5. Describing.
6. Charting evidence.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. After outside activity "B", make a sense chart headed by the question: By using your senses, what can you learn about the soil?

Me	The Soil
touch	texture
taste	sandy
smell	moist
sight	color

B. After completing the outside activity "B" or "C", class will discuss the question: How do we change the earth?
1. Add water to it.
2. Add fertilizer.
3. Plant something.
4. Let it dry out in the sun.
5. Heat it in an oven.

C. Plant the same kind of seed (corn) in all foam cups and give each the same amount of water. Keep some of the plants away from direct sunlight, some in the window.

(Continued)

Outside or Community:

A. Examine the various levels of the earth; color, texture, density, smell.

B. Using senses -
1. Describe the smell of the earth.
2. What words would you use to tell how the earth feels?
3. Do some parts feel differently?
4. Look for signs of life.
5. How many colors do you see?
6. Listen as you rub the earth between your hands. Can you describe the sound?

C. Use ICE field activity guide, "It's Your World", a sensory experience available from Project ICE.

SUGGESTED RESOURCES

Publications:

Science In Your Own Backyard, E. K. Cooper, Harcourt, Brace, 1958

Classroom Out-of-Doors, Wilbur Schramm, Sequoia Press, 1969

A Handful of Soil, Seymour Simon, Hawthorne Books

Audio–Visual:

Films:

Earth - Man's Home, BAVI

Our Earth, BAVI

Community:

Conservation Department

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

D. Students keep running chart of plantings in direct light and window light and then write a comparison/contrast report on their findings.

E. Students evaluate their findings and list conclusions on chalkboard.

F. How Could You Know?

If you could not use your eyes, how else could you tell just what each of these things named below was or just what was happening? Some you could hear, some you could smell, some you could taste, and others you would have to touch. Before each of the following, write how you would know. Write HEAR or SMELL or TASTE or TOUCH.

_______ 1. The glass of milk was warm.
_______ 2. The cheese was sharp.
_______ 3. The cake had orange icing.
_______ 4. The brown trunk was very light.
_______ 5. The closed tin can was empty.
_______ 6. It was sugar and not salt in the jar.
_______ 7. The string beans were cut but uncooked.
_______ 8. The baby had sticky hands.
_______ 9. The washing machine was full of water.
_______ 10. Hay had been stored in the top of the barn.
_______ 11. The cream had begun to turn sour.
_______ 12. It was fish and not chicken cooking in the covered pan.
_______ 13. The butter was too hard to use on soft bread.
_______ 14. The meat was well done inside, too.
_______ 15. The red apple was not really ripe.
_______ 16. The popcorn was too sweet.
_______ 17. The steam kept lifting the cover of the pan.
_______ 18. The small bowl was very heavy.

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

_______ 19. Gas and not water was running from the underside of the car.
_______ 20. The mountain lake was ice cold.
_______ 21. The bark of the oak tree was not smooth.
_______ 22. The sidewalk on the sunny side of the street burned our feet.
_______ 23. There was sea water in the pool on the ship.
_______ 24. The teeth of the old saw were still sharp.
_______ 25. My brother ground his teeth in his sleep.

G. Tastings

Get the youngsters to pantomime their physical reactions to tasting something that is:

1. Too hot.
2. Too cold.
3. Something familiar.
4. Too bitter.
5. Something distasteful.
6. Very peppery.
7. Very good.
8. Oily.
9. Very sweet.
10. Very sour.

Environmental:

Integrated with:

CONCEPT NO. 11 - Individual Acts

SUBJECT Art

ORIENTATION Individual Alterations

TOPIC/UNIT Group Design

BEHAVIORAL OBJECTIVES

Cognitive:

Applies the principle of combining individual acts to make a whole through completion of the project which is made up of individual components.

Affective:

The student accepts the responsibility of individual work to develop the whole by willingly participating in the group project.

Skills Used:

1. Construction.
2. Observation.
3. Discussion.
4. Painting.
5. Group planning.
6. Cooperation.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. Each student makes one Christmas ornament to decorate a tree for the Christmas holidays. Construction paper and cellophane, mache, etc.

B. Each student saves and brings bottom of egg cartons of the same color to tile ceiling for attractiveness and acoustics. (Check fire codes). (Semester to complete). Staple or fasten together with brass fasteners.

Outside or Community:

A. Group effort to obtain a tree for the room to decorate.

B. Compare acoustics in various community buildings, such as swimming pool, church, theaters, school, gymnasium, lunchroom, etc. Use a tape recorder to do this.

SUGGESTED RESOURCES

Publications:

"Humanizing the School With Children's Art", Lewis & Clark School, St. Louis, V.T. Mealy, Instructor, 79:55 MY '70

"In The Courtyard with an Art Student, Little Boxes-Big Boxes", E. Deutsch, Arts & Activities, 69:40-1 F '71

"Design Experiments With Natural Materials", R. Moorse, il. School Arts, 68: 16-17 Mr. '69

(Continued)

Audio–Visual:

"Rag Tapestry" (wall hanging) film, International Film Foundation

Community:

Community building
Art museum to view murals

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Paint a What? Paint a Bus!", B.J. Erdahl, School Arts, p. 12-13, Nov. '71

"Textured Mural", L. Olson, Grade Teacher, p. 82-83, Feb. '72

"Painting City Walls", L. Friedman, School Arts, p. 28-29, Jan. '70

"School Mural", N.K. Rockwell, School Arts, p. 16-17, Feb. '70

Environmental:

CONCEPT NO. 11 - Individual Acts

ORIENTATION Environmental Problems

Integrated with:

SUBJECT Physical Education

TOPIC/UNIT Rope Jumping

BEHAVIORAL OBJECTIVES

Cognitive:

Determine their environmental activities by reciting two or more ditties while jumping rope.

Demonstrate the value of physical activity in reducing environmental problems.

Affective:

Indicate an enthusiasm for and enjoyment of activities that emphasize the importance of reducing environmental problems by using such ditties when no teacher is present.

Skills Used:

1. Jumping
2. Agility
3. Balance
4. Coordination
5. Perception

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. Rope jumping.
   1. Individual jumps.
   2. Double rope.
   3. Snakes--one long rope wiggled horizontally.
   4. Under the bridge--running under it.
   5. Cut the bread--raise straight up and down.
   6. Cradles--back and forth, not over.
   7. Waves--one end held high to make ripple and jump over (ripple--vertical).
   8. Peppers--means jumping at double speed.

B. Ditties

Jump rope or marching song: Marching to Pretoria.

I'm with you & you're with me
And so we are all together
So we are all together..

(Continued)

Outside or Community:

A. Visit a junior or senior high gymnastic class.

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Ecology Folk Songs, Grades 4-high school, Album K 9000-1-12", 33 1/3 rpm, record, guide (cassette, $6.95).

Honor Your Partner Albums, "Rope Skipping, Ball Bouncing", Vocational Activities, Inc., Freeport, New York

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

I'm with you and you're with me
And so we are all together
As we march along.

We are marching for Ecology, Ecology, Ecology
We are marching for Ecology, Ecology, Hurrah!
P O L L U T I O N
Pollution is a dirty word
But it's not hard to spell,
Just practice with the syllables
Until you know it well
Pol - lu - and then t i o n.
Pollution, pollution -
Let's spell it once again.
P - O - L - L - U - T - I - O - N
- - - - -
E-C-O-L-O-G-Y
E - C - O - L - O - G - Y
You can spell it if you try.
You can understand it, too,
And then you'll make it work for you.

It isn't luck, it isn't fate -
It's just that all things must relate.
Weather, wildlife, water, woods -
When they balance, life is good.
- - - - -
I see paper, I see trash,
I see someone's foolishness.
- - - - -
Fire, fire, fire alarm
A spark fell into a farmer's yard,
How many animals did it harm?

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

Campfire, campfire, burn so bright
Campfire, campfire, gives us light
Campfire, campfire, what a beautiful night.
Holy smoke! The campfire got away tonight.
How many trees did it burn down?

- - - - -

Papers, bottles, tires and cans
Tell me pollution is caused by man
Fight, fight, fight, fight pollution.

C. Individual rope skills.
  1. Turn rope forward.
    a. Jump on toes of both feet.
    b. Jump on right foot.
    c. Jump on left foot.
    d. Jump first on right foot, then on left.
    e. Progress forward in a run.
    f. Progress forward in a skip.
    g. On the odd count, ordinary jump; on the even count cross hands in front of body making a loop through which the child jumps.
    h. Hold one leg high, knee straight, toes pointed, jump on other foot.
    i. Same as "h" but throw raised leg forward on one jump and backward on the next.
    j. Jump with feet spread sideward.
    k. Jump with feet spread sideward and backward.
    l. Rocker, leap forward on one foot, leap backward onto other foot.
    m. Double jump forward - two jumps to each turn of the rope.
    n. Jump and land with the feet crossed, alternating the position of feet on each jump.
    o. Click heels together while in air.
    p. Turn rope twice while in air.
    q. Move sideward right or left on each jump.

(Continued)

SUGGESTED RESOURCES

Publications:

Audio–Visual:

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. Turn rope backward doing the above.
3. Click handles of rope together or clap hands each time rope is jumped.
4. Cradling--swing the rope forward under the feet.
5. Grasp both ends of rope in one hand, assume deep knee-bend position, and swing rope in a circular path near ground or floor and jump the rope.
   a. Jump with both feet.
   b. Jump with right or left foot.
   c. Jump alternating hands, or direction.
6. To change direction of rope or to permit jumper to make a different type of jump, use the slip--student swings rope to one side maintaining same jumping rhythm.

D. Individual rope--partners jumping.
   1. No. 1 turns rope forward, No. 2 runs in, faces his partner, and both jump.
   2. Same as "1" but done backwards.
   3. No. 1 turns rope forward. No. 2 runs in, turns his back to partner.
   4. No. 1 turns rope forward. No. 2 runs in behind partner.
   5. Partners stand side by side, inside hands joined, outside hands turning the rope.
   6. No. 1 turns rope forward, No. 2 runs in, faces No. 1 and executes quarter, half and full turns on each jump.

Environmental:

CONCEPT NO. 11 - Individual Acts

ORIENTATION Quality of Life

Integrated with:

SUBJECT Mathematics

TOPIC/UNIT Ordered Pairs

BEHAVIORAL OBJECTIVES

Cognitive:
Given a shoe box, rig-a-jig triangles and blocks the child will construct a city block & discuss the significant changes taking place in this situation. Child will also discuss a possible increase of cars passing and of related problems.
The learner will propose ways of decreasing the amount of land we use.

Affective:
The learner will defend the proposed ways of decreasing the amount of land we use.

Skills Used:
1. Graphing
2. Math skills - subtraction
3. Interpretation
4. Constructing
5. Discussing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Simulating an environmental change.
   1. Give each student a shoe box or similar box--stand up triangles from a rig-a-jig to act as trees.
   2. Put a block into the box. This is a building. How many trees go?
   3. Now introduce three or four blocks; how many trees go?
   4. Child may graph results and findings.

B. Car Census
   1. Count the cars that pass by the building in ten minutes. If the number doubled, what would happen? If it tripled?
   2. Graph results.
   3. Discuss what happens when an act is duplicated. Is there a way this could be stopped or changed so that natural areas could be preserved?

(Continued)

Outside or Community:

A. Visit the site of a housing development to see how forests are being eaten up.
   1. Class will construct an "ideal" model village and contrast to a "busy" village. (sign pollution etc.) (See pages 75 and 88 of this guide.)
   2. Real estate person to speak on land development.

SUGGESTED RESOURCES

Publications:

Ecology: The City, George McCue, ICE RMC, 130 Mc

Community Planning Handbook, Ginn and Co., ICE RMC, 110 Gi

Audio–Visual:

Filmstrips:
  Urban Ecology: Six Microsystems, Eye Gate, ICE RMC, FS St 3
  Planning Our Cities, Current Affairs Films, New York
Game:
  Man in His Environment, Coca-Cola Co., ICE RMC, SG 4
Films:
  Cities Are Different & Alike, BAVI
  Boomsville, ICE RMC, Film #400

Community:

Real estate man
City planner

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

4. George Howlett, Project ICE, has prepared an urban field experience entitled, "Don't Use Traffic Jam on Peanut Butter Sandwiches". This is available from the Project ICE office.

C. Use "Man in His Environment" game.

Environmental:

CONCEPT NO. 12 - Stewardship

ORIENTATION Land Use

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Rules and Rights

BEHAVIORAL OBJECTIVES

Cognitive:

The child will identify (possibly from pictures) some of the violations of land use which are imposing on others' rights.

List five rules or practices that each can do, as an individual, to get along well with our neighbors in the use of land.

Affective:

The student will support the idea that neighbors should try to get along with each other by drawing a comic strip or cartoon showing violation of personal rights and ways in which these rights can be protected.

Skills Used:

1. Alphabetize word list.
2. Discussion.
3. Evaluation.
4. Definitions.
5. Listing.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Children list why they like their homes. Then each lists how he would like to change his home. Discuss whether these changes are going to violate any of the rights of their neighbors of the community. Ex.-parking cars, putting up fences, allowing animals to be unattended, unkept yards

B. Discuss rules that should be made to keep parks natural. Include rules that pertain to trails, plants, animals, souvenirs, camping places, dumping unwanted articles on banks of the streams or in parks. Write limericks or create posters to help stop littering.

C. Prepare a word bank or personal dictionary of words relating to environment, ex.-aroma, debris, contamination, natural resources,

(Continued)

Outside or Community:

A. In winter, get a copy of snowmobile ordinances (state and local). Have a conservationist talk to the group, and tell about the hazards, violations, and consequences of constant use of these machines in forests, on ponds, lakes and public parks.

SUGGESTED RESOURCES

Publications:

Just Right, Moore
A Small Lot, Keith
Follow the Brook, Lathrop
Who Goes There?, Lathrop
End of the Line, Udry
My Side of the Mountain, Jean George
Lorax, Dr. Seuss

Audio–Visual:

Films:
- Your Friend the Forest - Save It or Destroy It, EBF
- Your Friend the Soil - Keep It or Lose It, EBF
- Your Friend the Water - Clean or Dirty, EBF
- The Treehouse, Brown County Library

Filmstrip:
- Environmental Pollution...Our World in Crisis, Ward's Natural Science Estab., Inc., ICE RMC, FS St 1

Community:

Conservationist

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

wildlife, pungent, radioactivity, decay, detergent, conservation, poisonous, mucky, stench, unreplenishable, consumption, refuse, disease, sewage, thermal, bacteria, pesticides, recreation, perishable, etc.

D. Vocabulary charades.
Use tagboard strips to record environmental vocabulary words. Using the flash card method, the teacher prompts a student to give a certain pantomime (gesture or movement) for each word. The class agrees on the acceptable gesture for each word. This "acceptable" gesture is used whenever game is played.

Environmental:

CONCEPT NO. 12 - Stewardship

ORIENTATION Environmental Quality for Man

Integrated with:

SUBJECT Language Arts, Math

TOPIC/UNIT Rights of Others, Possessions, Ownership

BEHAVIORAL OBJECTIVES	STUDENT–CENTERED LEARNING ACTIVITIES	
	In-Class:	**Outside or Community:**
Cognitive: Children will list five situations where private ownership must involve private stewardship. Record the space measures of various areas when given the game "Rescue in Space".	I. Language Arts A. Before class begins, the teacher will distribute her possessions around the room--on desks, under and near desks. She hopes the children will return them. B. Discussion of what has just happened. Ask if it was right for me as a teacher to leave my things about. Why? (Someone else had to pick them up; she was just causing other people to do unnecessary work; they were in people's way.) C. Have students list things which they should do to show they take care of their possessions and do not cause other people to suffer. (Continued)	A. Have a person who has lived in both city and rural environments discuss the space used. B. FHA person speak on housing requirements. C. Go to a city street and see the space allowed each person.
Affective: Children will list six things that they enjoy doing and then decide on three things they'd be willing to give up in an effort to improve environmental quality.		
Skills Used: 1. Listening 2. Reasoning 3. Discussion 4. Critical thinking 5. Measuring 6. Interpretation 7. Generalization		

SUGGESTED RESOURCES

Publications:

Man and His Environment, J.Y. Wang, ICE RMC, 160 Wa
Our Man-Made Environment, Book 7, ICE RMC, 120 O
Too Many People, Richard Kimball, ICE RMC, 190 Ki
Children's Books:
  Little Boy Brown, Harris
  A Small Lot, Keith
  Just Right, Moore

Audio–Visual:

Game:
  Man in His Environment, Coca-Cola Co., ICE RMC, SG 4

Community:

Observe city streets
Listen to FHA man
Rural and urban citizen, discuss space of both

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

- D. Do you like to have your area and freedom to work cluttered up with other people's possessions? Or your space used by someone else's belongings?
- E. Discuss how putting things into an area or on your property changes the way you can use it or changes the things others can do on it.
- F. Where have you seen your rights encroached upon by another's use of space?

II. Math

- A. Use "Man in His Environment" game. Use only the section on "Rescue in Space". Manual is very clear.
- B. You may try measurement if possible.
- C. Use of space.
  - 1. Measure off an area in the room and have a student attempt to exercise in it.
  - 2. Introduce more persons into the area or introduce objects into the area. Discuss what happens.

Environmental:

CONCEPT NO. 12 - Stewardship

ORIENTATION Environmental Law

Integrated with:

SUBJECT Social Studies

TOPIC/UNIT Conservation and Government

BEHAVIORAL OBJECTIVES

Cognitive:

Explain how the conservation law and the concept of private property can be in direct conflict.

Affective:

Child will participate in role-playing and discussion concerning the conflict between the conservation law and the concept of private property.

Skills Used:

1. Research
2. Communication
3. Reference
4. Observation
5. Participation
6. Critical thinking

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. The conflict between the conservation law and the concept of private property can be explored by debating teams of three or by role-playing a discussion between two people. It can be dramatized in a political cartoon supporting or arguing against an environmental issue. Possible pro responses:
   1. Trees keep your soil and your neighbors' soil from washing away.
   2. The country needs trees.
   3. Trees are beautiful. Your neighbors and visitors have a right to see the beauty of the country.
   4. You may own the land, but you are a member of this country, which lets you own land.

(Continued)

Outside or Community:

A. Visit City Hall to have the present community zones described and explained. Include in discussion:
   1. Noise
   2. Odor
   3. Traffic
   4. Waste disposal
   5. Education
   6. Recreation

SUGGESTED RESOURCES

Publications:

Let's Go To City Hall, Wolfe
All Ways, Andrews
Patterns of Nature, Baker
McGale's Mountains, Benzin
A Big Pile of Dirt, Clymer
Teacher's Forest Fire Prevention and Conservation Kit, Grades 1-4, Forest Service, U.S. Dept. of Agriculture or your State Forestry Department, ICE RMC, 170 Fo

Audio–Visual:

Film:
The World Around Us
Filmstrip:
Enemies of the Forest

Community:

Property owners
Sportsmen
Hunter
Fisherman
Forest Ranger

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

Responses against law:

1. I can do as I please with my land; it's a free country.
2. Tough luck for my neighbor if his soil washes away; he took a chance when he bought the lot next to mine.

B. Using the chalkboard the teacher would place several issues before the students. The class would give pro and con statements per issue. This technique may help how to illustrate just what a debate or argument involves. For example:

Issue: Conserving Water

Pro	Con
1. Water is needed for life.	1. 2/3 of the world is covered with water.
2. Sixty gallons of water per person is used each day.	2. Salt water can be turned into fresh water.

Issue: Saving Gas

Pro	Con
1. Oil resources are limited.	1. Other energy sources are possible.
2. Greater use causes greater pollution.	2. Travel should be convenient.

Environmental:

CONCEPT NO. 12 - Stewardship

ORIENTATION Stewardship and Rights

Integrated with:

SUBJECT Art

TOPIC/UNIT Drawing and Printing

BEHAVIORAL OBJECTIVES

Cognitive:

Define stewards of the land in their own terms.

Illustrate the importance of man being a good steward of the land with examples.

List three examples of stewards of the land not previously discussed or named.

Affective:

Make posters that illustrate the need for stewardship and the responsibility of individuals and groups in this matter.

Skills Used:

1. Drawing
2. Idea organization
3. Block printing
4. Cutting
5. Gluing
6. Observation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Block print mottos. Students should contrive mottos and print them in a place they might be easily observed. Examples:
   1. Give a hoot, don't pollute.
   2. Help prevent forest fires.
   3. Hang onto life for all that it's worth.
   4. Care and share.

B. Could use cardboard, styrofoam, cork sheets or tagboard to create the block. Tempra or printer's ink is used as printing media.

Outside or Community:

A. Project could be done in conjunction with social studies using the following speakers:
   1. Neighborhood stewards.
   2. Community stewards.
   3. Moms and Dads.
   4. Student ecology/ service club members.

SUGGESTED RESOURCES

Publications:

"Monoprints in Color", P. Carruba, Arts & Activities, p. 41, Dec. '70

"3 Color Cardboard Printmaking", E. Deutsch, Arts & Activities, p. 34-5, April '71

"Papercrafts and Mobiles", R. Perlmutter, Teaching Exceptional Children, p. 134-41, Spring '72

"Print With Egg Cartons", S. Rolle, Art & Activities, p. 35, Sept. '71 (Continued)

Audio—Visual:

McGraw-Hill Study Prints, "Introducing Animals Series", ICE RMC, KT 19

Conservation 2 Picture Discussion Kit, American Petroleum Institute, 1965

Pictures and bumper stickers available from the Environmental Protection Agency, Office of Public Affairs, One N. Wacker Drive, Chicago, Illinois

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Making A Cardboard Print", E. Palmatier, Today's Education, p. 66, Nov. '71

"Just Ink and Print With Fruit or Vegetables", Sunset, p. 147-152, N. '71

"Printmaking for Primary Grades", R. A. Daniel, Arts & Activities, 70:38-9, '71

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APPENDIX

Mr. Mars

Can be used with concepts 6, 7, 9 and 11.

One player is Mr. Mars. All other players stand in a straight line on one goal. In unison, players call, "Mr. Mars, Mr. Mars, will you chase us to the stars?" Mr. Mars replies, "Yes, if you're wearing __________". (He calls a color such as red, green, etc.) All players wearing that color run to opposite goal and Mr. Mars tries to tag them. Any player he catches is out of the game. He has three chances, then calls everyone over.

Telephone Tag

Can be used with concepts 7 and 11.

Form a circle. Count off by five. Each player lives in his own house. Teacher calls a number and all players with that number run counter-clockwise around the circle once and back to their own houses. Last one to get home was too late to answer the phone. He sits down in his house. Continue game until one player of each number is left.

Bird Catcher

Can be used with concepts 2 and 3.

Divide the class into four or five kinds of birds. One player is the hawk. The hawk stands in the center between two goals. He tries to guess the kind of birds each group is. When he calls the bird of a group, they must try to run to opposite goal without being tagged. To give hawk hints, the birds may imitate the sound they make.

Crows and Cranes

Can be used with concepts 2 and 3.

Equal number of players in two straight lines, three feet apart. One team is crows, the other cranes. When teacher calls crows, they run to their goal line, and the cranes try to tag them. If he calls "cranes", cranes run to their goal. Any player caught goes to opposite team.